

# Air Conditioning & REFRIGERATION

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# NEWS

## 40 Exhibits Ready For Toronto Show Opening Monday

TORONTO, Ont., Can.—With 40 exhibit spaces already contracted for and a jam-packed two-day program arranged, the Toronto Maple Leaf Chapter of the Refrigeration Service Engineers Society is looking forward to the opening of its second annual refrigeration convention and exhibition on March 17 at the King Edward hotel here.

Refrigeration service men from the United States are especially invited to attend this meeting, both in the interests of improving their own operations and of further promoting international friendship.

Registration fees will be \$3 for men and \$2 for women, and will cover everything on the program, including the banquet and dance scheduled as the grand finale on March 18. Special tickets for the dance only are available at \$3 per couple.

Detailed program schedule follows:

**MONDAY, MARCH 17**

9 a.m.—Registration.

10 a.m.—Introductory remarks and nominating committee.

10:30 a.m.—Commercial Coils and Applications, representative of Peerless of America, Inc., Chicago.

11:15 a.m.—Beverage and Water

(Concluded on Page 4, Column 5)

## Texas Meeting Will Cover Food Handling

AUSTIN, Tex.—Quick freezing, the application of refrigeration to the dairy industry, the development of refrigeration in Texas and the South, and the problems of locker storage plants are outlined as the subjects of the four sessions which will constitute the Second Food Preservation Conference here March 13 and 14.

Sponsored by the University of Texas, this conference has been prepared in conjunction with the American Society of Refrigerating Engineers' food conference committee, of which Willis R. Woolrich, dean of the engineering school at the University of Texas, is chairman.

Prof. Byron Short, also of the university's faculty, and one of those persons who were instrumental in preparing the first conference program two years ago, is chairman of this year's meeting.

The quick freezing session will start off the conference on Thursday, March 13. The freezing of ice cream, sea foods, and citrus fruits will be discussed, and the operation and

(Concluded on Page 7, Column 1)

## Kelvinator Adds 2 'Step-up' Models

DETROIT—Two new household refrigerators—the C-6 priced at \$124.95 and the DA-6 at \$134.95—have been added to the Kelvinator line to round out the company's plan of step-up selling, particularly among the lower priced units.

Despite recent price advances, Kelvinator now has three equipped refrigerator models selling for less than \$145.

Similar changes have been made in the Leonard line, with two new models—the LC-6 at \$124.95 and the LDA-6 at \$134.95—having been added.

The new Kelvinator C-6, which sells for only \$5 more than the \$119.75 SS-6, affords an easy step-up from this line leader. In addition to all the basic features found in the SS-6, the C-6 offers stainless steel

(Concluded on Page 4, Column 4)

### South American Subscribers: Attention!

The Spanish edition of the 1941 Refrigeration and Air Conditioning Directory will soon be rolling off the press, and ready for distribution to Spanish-speaking nations.

Subscribers to AIR CONDITIONING & REFRIGERATION NEWS who reside in South America or in Spain may have a free copy of this valuable, 260-page book by writing to the publisher of the NEWS and asking for a copy.

In addition to a complete directory of manufacturers of household refrigeration, commercial refrigeration, and air conditioning equipment, parts, materials, and supplies, plus an index of jobbers, this Spanish edition will contain:

(1) An introduction in Spanish, telling how to use the book;

(2) A Spanish-English index, glossary, and key to terms;

(3) The first two chapters of the forthcoming Household Refrigeration Service Manual for South America, translated into Spanish by Prida y Betancourt, refrigeration engineers in Havana, Cuba.

## Prices Go Up on Display Cases

DETROIT, March 10—Price increases by manufacturers of commercial refrigerator equipment (display cases, reach-in and walk-in coolers, etc.) will be general throughout the industry, a survey among the leading makers revealed today. Most of the increases were at the 5% mark, although some were as much as 10%.

McCray, Hussmann, and Puffer-Hubbard have announced price increases that are either already in effect or will be in effect soon, and an executive who is in the closest touch with the industry's affairs said that he expected that all producers would soon make announcement of increases.

Rising costs were given generally as the reason for the price boost, although in one case the step up in list price was said to have been done to give the dealer "a broader trading margin."

Puffer-Hubbard raised prices 5% on display cases (except the 10-foot size, on which the raise was only 2 1/2%), 5% on beverage coolers, 5% on walk-in coolers, and 10% on basement and plain storage coolers. There is no price raise on commercial cabinets. In making the announcement of the increases, which are effective March 20, the Puffer-Hubbard management said:

"The advance in price is due to increased costs, principally on material items. Practically all delivery promises have been set back for weeks and months, and this has necessitated our buying many of our material items out of a warehouse stock at much higher prices.

"Some materials are no longer available, such as stainless steel and aluminum, because of government priorities, and this will necessitate our substituting other materials when our supply is exhausted.

"Present indications are that there will be no lower prices during 1941, and chances are that there may have to be further price advances during the season."

### John Trix, American Injector Official, Dies

DETROIT—John J. B. Trix, secretary-treasurer of American Injector Co., died unexpectedly of a heart ailment last Wednesday, March 5, at his office in the company's plant. He was 68 years old.

Mr. Trix learned the foundry business from the ground up in the plant of American Injector Co., which was founded by his father. After studying engineering for three years at Michigan State College, he returned

(Concluded on Page 4, Column 3)

## Coolidge Heads Sales For Sherer-Gillett

MARSHALL, Mich.—John H. Coolidge has been appointed vice president in charge of sales for Sherer-Gillett Co., manufacturer of refrigerated display equipment, and has assumed direction of the company's sales department. Vice President Kenneth D. Zenkere, formerly sales manager, has taken on new administrative duties.

Mr. Coolidge has been assistant sales manager for Sherer-Gillett during the past five years. Mr. Zenkere has been associated with the company for the past 18 years.

## Marlo Constructs Plant Addition

ST. LOUIS—Construction was to start this month on an addition to the plant of the Marlo Coil Co., manufacturer of refrigeration and air conditioning equipment, 6135 Manchester Ave.

The expansion program will link the existing buildings with a com-

YOUNGSTOWN, Ohio—Installation of modern refrigeration equipment, including 11 condensing units, as part of a complete remodeling program has enabled the Sirbu Market here to show savings in both power and water costs over the equipment formerly used. Modernization of the market was necessitated by a change in the level of the street on which the store is located.

The 11 air-cooled condensing units range in size from 1/4 to 1 1/2 hp. and a complete lineup of new display cases, coolers, and cold plates were installed in the market, the refrigerating equipment replacing ammonia machines of 15 and 5 tons capacity formerly used in connection with a well-water system operated by the store.

In the store's display windows are two Dole plates, duplexed on a 1/2-hp. unit, and used for open display of fruits and vegetables. A 6-foot refrigerated vegetable display case is connected to a 1/4-hp. unit.

(Concluded on Page 4, Column 4)

## The Newspaper of the Industry

Issued Every Wednesday at Detroit, Michigan

MARCH 12, 1941

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Member Audit Bureau of Circulations  
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## Refrigerator Ice Tray Quota Is Cut More Than Half By OPM

### Carrier Allows 1% of Product Cost for Dealer Advertising

Order Specifies Number Of Trays Permitted By Model Sizes

By George F. Taubeneck

WASHINGTON, D. C.—All new refrigerators sold in the United States henceforth will carry less than half the usual quota of aluminum ice trays, following an order issued March 6 by the director of priorities, Office of Production Management.

(This move was predicted on page 1 of the Feb. 19 issue of AIR CONDITIONING & REFRIGERATION NEWS.)

It is estimated that through this action approximately seven and one-half million pounds of aluminum will be saved per year.

Trays made of substitute materials, such as rubber, will be available.

Manufacturers of household mechanical refrigerators were called to Washington a week ago by request of Dr. Ernest M. Hopkins, minerals and metals executive of the priorities division of the OPM.

After discussing the problem of aluminum conservation with officials of the priorities division of the OPM, the manufacturers agreed to undertake voluntary cooperation with the OPM through the offices of the National Electrical Manufacturers Association.

Because of the vital nature of refrigeration in the conservation of the food supply and the preservation of health, materials needed for munitions production (such as aluminum) will be rationed to the industry, rather than cut off entirely as in the case of less essential industries.

Following is the official order from E. R. Stettinius, Jr., director of the OPM's priorities division:

Office of Production Management  
Social Security Building  
Washington, D. C.

March 6, 1941

To Manufacturers, Jobbers, and Dealers in Electric, Gas, and Other Mechanical Refrigerators For Domestic Use:

To implement Priority orders issued, and to conserve aluminum for National Defense purposes, the sale of ice trays made of or containing aluminum for use in mechanical refrigerators should be restricted as follows, effective March 5, 1941:

1. With the sale of new refrigerators, there may be included aluminum ice trays as follows:

Boxes less than 6 cubic feet capacity — one tray, two pounds capacity.

(Concluded on Page 4, Column 5)

## 11 Machines For One Market - - How It's Done Today



Typical of today's trend toward low-pressure condensing units each serving its own separate piece of refrigerator equipment is this installation in the Sirbu Market, Youngstown, Ohio.

## Novel Beverage Cooler Makes A Frosted Sign Above Cabinet

ALAMEDA, Calif.—Formed of  $\frac{1}{2}$ -inch tubing, a refrigerated frosted sign reading "Ice Cold Beverages" is displayed above the long beverage case in the recently opened Lucky Markets food store here to attract customers' attention and boost beverage sales.

The beverage case is 16 ft. long, 42 in. wide, and 36 in. high. This top is entirely open, without sliding doors or other closing devices. Insulated walls are 4 inches thick. Outer sides and ends are covered with white porcelain enamel. The tanks, of galvanized sheet metal, are 32 in. wide, and 18 in. deep, and extend the full length of the case.

Under the tanks, concealed within the case and accessible through white porcelain doors, are two complete refrigeration units, one for the case, the other for the refrigerated sign.

This case is one of a large number of specially devised merchandising units used by this store to promote self-service. Coils running underneath the tank keep 8 or 9 in. of water in the tank chilled. Into this water various types of non-intoxicating beverages are placed. Customers help themselves.

Along one side of the floor case, rising above the top of the case, are two 1 in. refrigeration pipes connected directly into the compressor's

circuit. These two standards are connected by a  $\frac{1}{2}$ -inch pipe, completing the circuit in direct line, with two right angle turns, instead of a coil.

The sign consists of letters formed and soldered, of  $\frac{1}{2}$ -inch pipe. Letter "T" of "Ice" is merely a pipe 8 in. long, suspended from the crosspiece. The lower end is closed, the upper end connected into the crosspiece. Refrigerant, flowing through the straight pipes, also flows through the letters, completely frosting them, the uprights and the crosspiece.

Other refrigerated units in the store include a 16-ft. reach-in floor case, 54 inches high, exclusively for self-service of dairy products.

This unit lines up, third in order, as part of the store's central line-up with the 40-ft. refrigerated delicatessen section first, and the identified beverage unit second. The refrigerated delicatessen is 16-ft. square.

## Minneapolis-Honeywell

**Net Is \$2,528,602**

MINNEAPOLIS—Net income for 1940 of \$2,528,602, equivalent, after deferred stock dividends, to \$3.87 a share on preferred stock, has been reported by Minneapolis-Honeywell Regulator Co. This compares with \$2,158,582, or \$3.27 a share, in 1939.

Sales last year were \$15,933,565, a 13.8% increase over 1939 sales of \$14,004,947. United States and British armament orders held by the company at the close of 1940 approximated \$2,000,000, announced H. W. Sweatt, president.

Since goods cannot be shipped to or remittances made by the company's subsidiary in Holland, the company charged its investment to 1940 operations, a total of \$62,749.

## The Widening Use Of Refrigeration

NEW YORK CITY—An increasing number of unusual applications for commercial refrigeration systems keeps turning up day after day. At the recent convention of the Servel electric refrigeration and air conditioning division, W. J. Aulsebrook, assistant sales manager, enumerated some of the more unusual jobs listed in their files as follows:

Oil coolers at  $-60^{\circ}$ .

Instrument testers from  $-30^{\circ}$  up. Cooling airplane rivets at about 32°.

Growing wheat in Department of Agriculture.

Incubating bacteria to fight saw flies in spruce timber.

Cooling oil in machine shops for precision production on grinding operations.

Freezing ice cream on board U. S. destroyers.

Storing serums and cultures worth hundreds of thousands of dollars in South America.

Used by National Geographical Society on their eclipse trip to remote Pacific island to cool darkroom for developing films.

Making ice in the interior of Colombia where the machine and gas engine were taken in piecemeal on mule back.

Air conditioning of automobiles and ambulances.

Freezing of champagne necks to remove dregs.

Cooling the chocolate coating on doughnuts.

Cooling brine for testing thermostats in one of the largest control factories in America.

Cooling the paraffin liners in bottle caps.

Cooling water used in the testing of cement briquettes in a state highway laboratory.

Cooling anodic aluminum baths by the circulation of chilled water in lead pipes to take out electrolytic heat and hold to  $70^{\circ}$ —one of the largest tray plants.

Condensing water out of the blanket gas for annealing furnaces.

## Many Temperatures In Alabama Bakery

BIRMINGHAM, Ala.—Air conditioning and refrigeration are used extensively in a \$100,000 branch plant opened here recently by a chain bakery and a plant to manufacture waxed paper for wrapping bread and other food products.

Cooling for the bakery includes the fermentation room, where dough in 680-loaf stainless steel containers remains for a predetermined length of time; proofbox, in which the dough, after being made into loaves, remains until it rises; and the cooler in which baked bread remains until it is cool enough for slicing and wrapping.

The plant also has a cooler for storage of ingredients and a special air conditioned compartment for storage of waxed wrapping paper. York and Union Steel Products Co. equipment is used throughout.

Year-around temperature of  $70^{\circ}$  F. with relative humidity not exceeding 60% is provided for the wax paper concern by a 70-ton York air washer system. In addition, a 15-ton brine tank supplies brine at 0 to  $10^{\circ}$  F. to the printing press, waxing machine, and cooling tank. The waxing machine is also supplied with water cooled to 34 to  $38^{\circ}$  F.

## Westinghouse Continues Plan For Graduates

EAST PITTSBURGH, Pa.—Westinghouse Electric & Mfg. Co. will select the usual number of young engineers from college seniors throughout the country, regardless of their potential military service.

J. H. Belknap, manager of the technical employment department, is now making a four-month tour of 121 schools.

In the event that some of those hired are later called up for training, a deferment plan will be worked out, if possible. After the new men have been with the company a year, they will be eligible for a year's leave of absence for military training.

**\$150,000 IN CASH PRIZES**

**TO SELL TAYLOR FREEZERS FOR YOU!**

*Here's the Mightiest of all Freezer Sales Campaigns and You can cash in on it!*

Now Taylor offers you another important sales advantage . . . a contest that will not only attract and influence present prospects but also create new prospects. Why not use this contest to boost YOUR sales and profits?

You'll be selling the freezer that outsells all others because it excels all others. Taylor is the only freezer with performance proved since 1926. It's been on the market and in the field longer than any other. And we specialize in counter freezers exclusively.

Moreover, we've always sold through commercial refrigeration distributors. So we must have a profitable proposition! In fact, you'll make more sales and profits with Taylor than with any other freezer.

You can qualify for a distributorship if your territory is open. Otherwise, you can get a profitable discount from our distributor plus his sales help. Mail the coupon now so you can profit from the interested inquiries pouring in from our national advertising.

*Get in the Money  
SEND FOR THIS BOOKLET!*

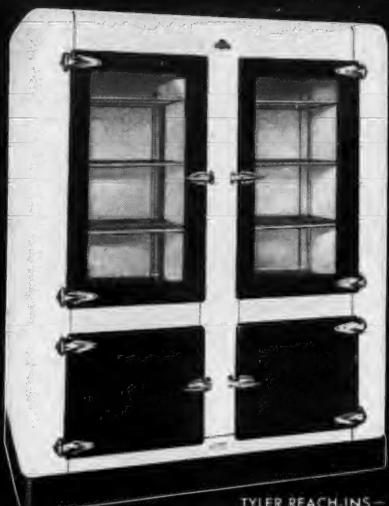
**Taylor Freezer, Beloit, Wisconsin**

Send us a copy of "Why You Should Sell Taylor Freezers" and complete information about your freezers and distributor proposition.

Name \_\_\_\_\_

Address \_\_\_\_\_

City & State \_\_\_\_\_



TYLER REACH-INS—  
available in many sizes and  
door arrangements, for markets,  
hotels, restaurants and institutions.



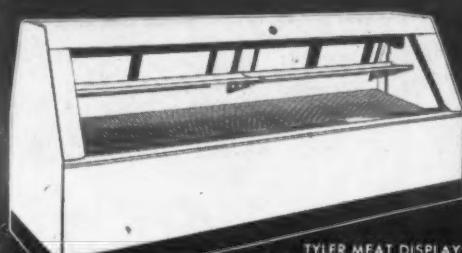
TYLER REFRIGERATED  
VEGETABLE DISPLAY. Large  
capacity. Easy servicing. A striking  
display unit. 6 ft. or 9 ft.



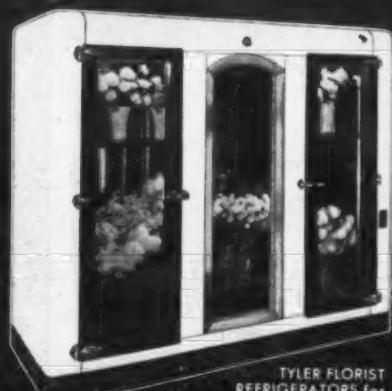
TYLER SECTIONAL  
STEEL WALK-IN COOLERS.  
Tight and strong—moistureproof.  
Vermi-proof. Easily enlarged  
with standard sections.



TYLER DAIRY BOXES—boost  
dairy department sales. Ideal for  
self-service or other food stores. 6 ft.,  
8 ft., 10 ft. and 12 ft. sizes.



TYLER MEAT DISPLAY  
CASES. One- and two-shelf  
(illustrated) Top Display. Double  
Duty and Floodlight types. 6 ft. to  
12 ft. lengths.



TYLER FLORIST  
REFRIGERATORS for  
sales-compelling display  
and storage of cut flowers.



# CLIMB ABOARD FOR BIGGER PROFITS IN '41

TYLER is going places in '41—and so are  
Tyler dealers. There's money in circulation  
everywhere, increased production, larger pay-  
rolls. Stores, restaurants, hotels, bars, taverns—  
all need new equipment to get their share of  
the EXTRA BUSINESS.

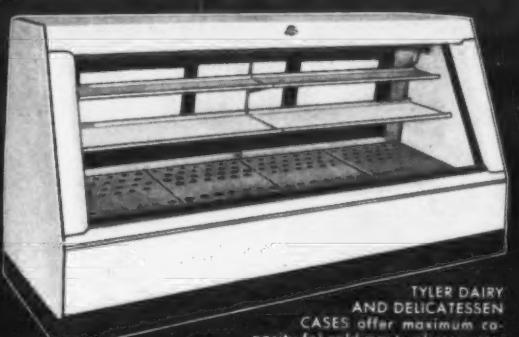
TYLER FIXTURE CORPORATION, DEPT. R, NILES, MICHIGAN  
NEW YORK OFFICE: 601 W. 26th St. BOSTON OFFICE: 683 Beacon St. CHICAGO OFFICE: 1663 W. Ogden Ave.

**TYLER**  
WELDED STEEL REFRIGERATORS

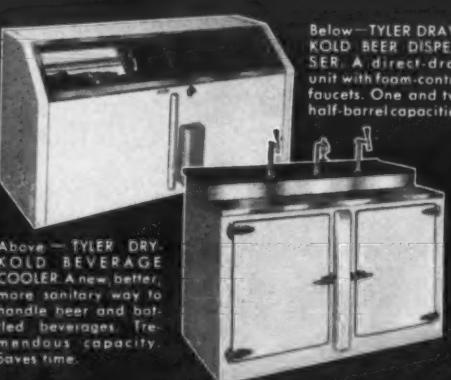
SKYSCRAPER  
STRENGTH



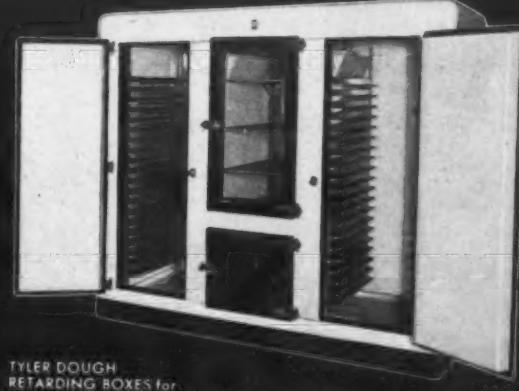
SKYLINER  
BEAUTY



TYLER DAIRY  
AND DELICATESSEN  
CASES offer maximum ca-  
pacity for cold meats, cheese, pre-  
pared foods. 4 ft. to 10 ft. lengths.



Above—TYLER DRY-KOLD BEVERAGE  
COOLER. A new, better,  
more sanitary way to  
handle beer and bat-  
tled beverages. Tremendous  
capacity. Saves time.



TYLER DOUGH  
RETARDING BOXES for  
all types of bakers. 40%  
greater capacity. Bakery Display  
Cases also available.

Below—TYLER DRAW  
KOLD BEER DISPEN-  
SER. A direct-draw  
unit with foam-control  
faucets. One and two  
half-barrel capacities.

## York To Tell Plans At 38 Meetings

YORK, Pa.—Beginning March 8 and continuing throughout the months of March, April, and May, York Ice Machinery Corp. is holding a series of 38 sales meetings for its branch and distributor organization throughout the country, at which

1941 York products will be exhibited—new sales policies will be discussed. Among the items of new equipment to be presented are: the new "V/W" York ammonia compressor; a new FlakIce Frosty Ribbon machine (model DER-25); a new series of fractional horsepower refrigerating units; redesigned York turbo-compressor system; Yorkaire conditioner.

Recent developments on cold storage doors, heating equipment, forced-air beverage coolers, and condensing units will be discussed.

### ADD CARBONATORS TO YOUR LINE

Only GENERAL CARBONATION gives these features

- LOW INITIAL COST
- NOTHING TO WEAR OUT
- UNLIMITED QUANTITY
- EASY TO INSTALL
- NO SPUTTERING
- ECONOMICAL
- DEPENDABLE

FRANCHISES STILL OPEN

GENERAL DRY BATTERIES, INC.  
CARBONATOR DIVISION  
CLEVELAND, OHIO • DUBUQUE, IOWA • TORONTO, ONTARIO, CANADA

## Announcing— LOWEST COST EVER

### SELL TO DOCTORS AND DENTISTS

Get out your order book and sign up every professional man who WANTED an air conditioned office but couldn't afford it until you told him about the new Carrier Weathermaker and its SENSATIONAL LOW COST!



### SELL TO OFFICES

Many business men are SOLD on Carrier Air Conditioning, for comfort and efficiency. Tell how this dependable Carrier Unit offers complete air conditioning at low cost—with the help of the most extensive air conditioning advertising campaign in history—you'll get ORDERS!



### SELL TO HOMES

Hundreds of homeowners in your territory are "hot" prospects for this low cost Carrier Air Conditioner. What's more, Carrier has prepared a special direct mail campaign to help you reach them fast. For details clip coupon.



## John Trix, Aminco Executive, Dies

(Concluded from Page 1, Column 3)  
to Detroit to begin his career in his father's business.

He spent several years in the shop before his father felt that he was ready for an executive position. A vice president before his father's death in 1932, John Trix became secretary-treasurer in association with his brother, Herbert, who is now president.

He was known to many refrigeration parts jobbers and other American Injector customers as the man who personally showed them through the company's plant whenever they visited it.

Surviving members of Mr. Trix's family include his widow, Mrs. Grace Trix; a daughter, Mary Grace; a son, John L.; and two brothers, Herbert B. of Detroit (American Injector president), and Ralph K. of New York City.

### Stewart-Warner Names 4 New Distributors

CHICAGO—Four new distributorships recently appointed by Stewart-Warner Corp. include: Alemite Co., 315 Yandell Blvd., El Paso, Tex., refrigerators and ranges; Keith Simons Co., Inc., Nashville, Tenn., refrigerators; Appliance Sales Co., Inc., 203 Monroe St., Memphis, Tenn., and Arizona Appliance Mart, 312 E. Congress St., Tucson, Ariz., ranges.

## Youngstown Job Uses 11 Low Pressure Units

(Concluded from Page 1, Column 3)

Three meat cases—two 12-foot units for display of fresh meat and an 8-foot case for cold meats—are served by as many  $\frac{1}{2}$ -hp. units. Separate machines of the same size are used on an 8-foot dairy display case and an ice-making cabinet.

Walk-in cooler equipment in the market includes a 10 x 12 service cooler, connected to a 1-hp. unit; a 10 x 12 retail cooler on a unit of the same size; and a 12 x 16 pickling cooler and 12 x 21 storage cooler, connected to separate units of  $\frac{1}{2}$ -hp. capacity.

Storage cooler has three forced-convection units, and the other units are equipped with louver cooling systems. All equipment was sold and installed by the Cleveland branch of McCray Refrigerator Co., of which J. N. Bolton is branch manager.

## Kelvinator Offers Two New Models

(Concluded from Page 1, Column 1)  
door opening trim and a porcelain covered sliding crisper. It has a capacity of  $6\frac{1}{4}$  cu. ft., a shelf area of 11.8 sq. ft., and a freezing capacity of 84 ice cubes.

The DA-6 has everything found in the C-6, plus a large sliding "cold chest," a glass covered crisper, and deluxe chrome trimming on the freezer door and the base. Food storage capacity is  $6\frac{1}{4}$  cu. ft., shelf area is 11.8 sq. ft., and ice cube, 64.

## OPM Cuts Quotas of Aluminum Trays

(Concluded from Page 1, Column 5)

Boxes 6 cubic feet or more, but less than 10 cubic feet—two trays, approximately four pounds total capacity.

Boxes 10 cubic feet or more—four trays, approximately eight pounds total capacity.

2. Aluminum trays should not be sold separately.

These restrictions do not apply to trays which do not contain aluminum.

E. R. STETTINIUS, JR.

Director of Priorities

A program designed to ease the present tightness in the supply of stainless steel and other nickel steels essential in defense industries has been inaugurated by the Priorities Division of the OPM and the leading steel producers.

Mr. Stettinius, Jr. announced that at a meeting in New York City at which the division was represented by Samuel S. Stratton of the Minerals and Metals Priority Section, the producers agreed to take two steps:

1. To give first call on stainless steel and other nickel steels to defense industries.

2. To consult with and give technical advice to their customers, in both the defense and non-defense spheres, in an effort to help them conserve the use of nickel steels wherever possible.

Producers said they felt there were a number of cases in which the shortage of nickel might be relieved to some extent through changes in order specifications.

Appointment of a committee of 10 representatives of all groups of the aluminum industry to work with the Price Stabilization Division of the National Defense Advisory Committee on the problems of aluminum scrap prices and supplies was voted by a meeting of some 60 leaders in the various divisions of the industry.

## Heavy Program Set For Toronto Show

(Concluded from Page 1, Column 1)  
Cooling, representative of Temprite Products Corp., Detroit.

12 noon—Lunch and exhibits.

1:30 p.m.—Controls and Water Valves, P. Penn, Penn Electric Switch Co., Goshen, Ind.

2:30 p.m.—Driers and Drier Agents, P. Domke, Mueller Brass Co., Port Huron, Mich.

3 p.m.—"Information, Please" session conducted by H. Parish, Kelvinator of Canada, Ltd., London, Ont.

3:30 p.m.—Exhibits and dinner.

8:30 p.m.—Soldering contest sponsored by Mueller Brass Co.

TUESDAY, MARCH 18

9 a.m.—Exhibits.

9:30 a.m.—Election of officers.

10 a.m.—Dole Plates and Applications, A. F. Sawyer, Dole Refrigerating Co., Chicago.

11 a.m.—Summary of the Historical Background of Mechanical Refrigeration, R. E. Townsend, Detroit Lubricator Co., New York City.

12 noon—Lunch and exhibits.

1:30 p.m.—Heat Interchangers and Applications, K. M. Newcum, Superior Valve & Fittings Co., Pittsburgh.

2:30 p.m.—Service Salesmanship, E. Graff, Ranco, Inc., Columbus, Ohio.

3:00 p.m.—"Information, Please" session conducted by H. Parish.

3:30 p.m.—Exhibits.

7:00 p.m.—Banquet.

9:00 p.m.—Dance.

Exhibitors include:

Aircar Refrigeration Parts Reg'd., Air Coils Ltd., Anaconda American Brass Ltd., Brunner Corp. of Canada, Canadian Curtis, Canadian Industries Ltd., Canadian Norbel Co., Canadian Westinghouse Co., A. Cross & Co., Davis Automatic Controls, Eureka Refrigerator Co., Robert Elder Carriage Works, Frigidaire.

Gilson Mfg. Co., Imperial Oil Ltd., Kelvinator of Canada Ltd., Leland Electric Co., V. H. McIntyre Ltd., McKinnon Industries Ltd., Mills Novelty Co. of Canada Ltd., E. Milner & Son, Minneapolis-Honeywell Regulator Co., Northern Electric Co., Powerlite Devices, Railway & Engineering Specialties.

Refrigeration Supplies Co., Sherer-Gillett Co. Ltd., Snap-On Tools Ltd., Geo. Tindall, Universal Cooler of Canada, Wagner Electric Co.

## New Carrier Weathermaker

(DE LUXE WINDOW MODEL)



### FRANCHISES NOW AVAILABLE

Don't delay. This lowest cost air conditioner in Carrier's history was developed especially for 1941 spring sales. Requests for dealer franchises are now being considered. Profit margins are extremely generous and you are furnished with a special advertising campaign to get inquiries from doctors, dentists, offices and selected homes. Write or wire today for complete information. Or mail coupon below.

**Carrier**  
**Weathermaker**  
(DE LUXE WINDOW MODEL)

### COMPLETE Air Conditioning

1 Window mounted—no floor space required.

2 Provides welcome coolness on hot days.

3 Adds constant supply of fresh outdoor air to room.

4 Recirculates room air or brings in outside air—as desired.

5 Filters both outside and recirculated air—all the time.

6 Exhausts odors and stale air.

7 Shuts out street noise.

8 Provides controlled ventilation in winter—no drafts.

9 Easily moved as needed.

10 Dependability backed by Air Conditioning's First Name.

CARRIER CORPORATION, SYRACUSE, N. Y.  
"Weather Makers to the World" Desk C12  
(In Canada, 30 Bloor St. West, Toronto, Ontario)  
Please send complete Franchise information  
on the new Carrier Weathermaker—De Luxe  
Window Model and three other models.  
NAME \_\_\_\_\_  
COMPANY \_\_\_\_\_  
ADDRESS \_\_\_\_\_



WESTINGHOUSE started something with its new informative labeling program. No sooner were these helpful, highly factual labels sealed to our 1941 appliances than the comments and compliments came pouring in.

Here at last, said housewives, consumer group leaders, educators and others, is just what we've been asking for—labels written in simple, non-technical language that give us a sound basis for judging the value of electrical products in relation to the price.

Dealers, too, have voiced their enthusiasm. For besides enabling prospective purchasers to buy exactly what they want, these descriptive tags serve as a guide to salesmen in explaining values.

As a dealer alert to new buying trends, you will want to familiarize yourself with this timely subject. We've prepared a prospectus that tells the whole story of Westinghouse Informative Labels. Just sign the coupon below and we'll send you a copy.

**MAIL THE COUPON FOR PROSPECTUS ON WESTINGHOUSE INFORMATIVE LABELS**



**Westinghouse**  
THE *Leisure Line* OF ELECTRIC HOME APPLIANCES

Westinghouse Electric & Mfg. Co.,  
Dept. 1080, Mansfield, Ohio

I'd like to receive a copy of your prospectus on Westinghouse Informative Labels.

Name

Company

Address

City  State

## New Machines, High Coil Temperatures Defrost Controls, Save Cafe \$241 Per Mo.

COLUMBUS, Ohio — Surprising economies in refrigeration operating costs have been effected by Mills Restaurant, 77 South High St., as a result of an outstanding installation engineering job, particularly with reference to control of the various temperatures needed.

New equipment has been installed throughout the extensive refrigerating system which serves 11 different boxes. Compressors, mains, coils, chillers, controls—all are brand new.

A saving of \$162 monthly has been achieved during winter months on power alone. An additional \$79 per month has been cut from operating expenses and personnel for the ice equipment. This brings the actual reduction in monthly refrigeration costs to the surprising figure of \$241.

The original equipment consisted of a 15-hp. ammonia compressor with an ice freezing tank and a 3-hp. brine circulator. The new installation reduces from 18 to 5 hp. the power required. These are a 2 and a 3-hp. York "Freon-12" water-cooled high temperature condensing units.

In effecting low operating costs, a basic design with unusually high evaporator temperatures was utilized. These economies far more than offset the higher initial investment in equipment.

In maintaining high evaporator temperature ranges automatic mercury-type controls were employed combining high pressure cut-out and

low pressure control switch. Thermal overload relays give motor protection.

Pressure actuated water regulating valves automatically feed the condensers in accordance with varying loads and water temperatures. The refrigerating system shares a common well with the air conditioning equipment. The 3-hp. unit requires 2.3 g.p.m.

Three major factors were calculated in the outstanding achievement of operating economy:

1. Correct balancing of evaporator surface with condensing unit performance.
2. Unusually high evaporating temperatures.
3. Complete frost-free cycle operation at all times.

Of the 11 refrigerator units in the installation, five are located on the basement level. These include walk-in storage boxes of varying inside temperature ranges:

Storage	Overall Dimensions (In Feet)	Temperatures °F.	Room	Box	Coil
Meat Box	8 1/2 x 7 x 8	85	36	21	
Melon Box	8 1/2 x 7 x 8	85	36	25	
Fruit Box	8 1/2 x 7 1/2 x 8	85	42	21	
Veg'e Box	8 1/2 x 6 1/2 x 8	85	42	25	
Crushed Ice Storage	7 x 7 x 9	85	28	20	

The boxes produce a fixture load in B.t.u. per hour ranging from 4,000 at the meat box to 11,600 maximum at the melon box. This basement load is carried by the

3-hp. condenser.

To secure entirely frost free performance so essential to low operating costs it was necessary to engineer a high relative humidity. Three types of coil systems were employed. Coil surface was proportioned liberally with an unusual degree of safety margin to assure operating cycles of absolute frost freedom.

Ranco 91G2 controls were installed. These are combined coil and air temperature controls which maintain strict fixture air temperature and permit coil defrosting under all load conditions.

This control takes its motivation from two capillary tubes. The cut-in capillary is attached to the coldest part of the coil unit and is wound around all of the coils. The coldest point is, of course, the point where the ice disappears last when defrosting. The cut-out capillary has a 24 inch controlling portion which is mounted in a straight line paralleling and an inch from the fixture wall. The cut-out tube is located in a stream of moving air from the warm air return.

Tube temperatures are reflected in the pressure in the bellows which each exert, in turn, pressure on their cut-in and cut-out levers. Constant contact with the bellows point is maintained by interior springing of both levers at their base. As the coil temperature lowers, the cut-in bellows pressure lowers allowing the cut-in lever to drop, thus releasing its tension on the contact lever and breaking the operating circuit.

The contact lever maintains its position against the cut-in lever in its movement until the contact lever's upper section reaches the cut-out lever which, operating in the same manner as the cut-in lever, has



Coils are mounted on both sides of the meat storage box. Note the control on the wall, and method of drain pan construction.

been moving upward under relaxing capillary pressure due to the lowering fixture temperature which follows lowering coil temperatures.

Thus this Ranco control cuts in only when the coil is defrosted and cuts out only when the refrigeration requirements are satisfied.

The system provides frequent cycling regardless of a cold location of the compressor. Under abnormal conditions where fixture air temperature is already equal to or lower than the desired point the control will cycle on changes in coil temperature only.

Installation of the cut-out capillary tube in the vegetable box required special attention because of the forced air convection unit. Tube is placed ahead of the coil so that it will be influenced by a combination of the forced cold air and the warmer return air. The placement allows the compressor to cycle two or more times to defrost the coil during the initial cooling of new stock.

In the vegetable box remarkable space economy was effected by using a York No. 4 spiral fin space chiller (unit cooler). Pockets of stale air are completely eliminated by the 180° angle diffusing grille with adjustable louvers for either horizontal or vertical diffusion. This positive forced-air movement is of vital importance in eliminating odors in

a vegetable box.

A two-speed fan control allows either 1,150 or 820 c.f.m. adjustable for seasonal needs. This unit has a 1/20-hp. motor consuming a maximum of 130 watts at high fan speed. The coil element features careful proportioning of primary and secondary surfaces.

The coil units are mounted on both sides of the meat and fruit boxes. In the melon box the coils are concentrated at the far end opposite the door.

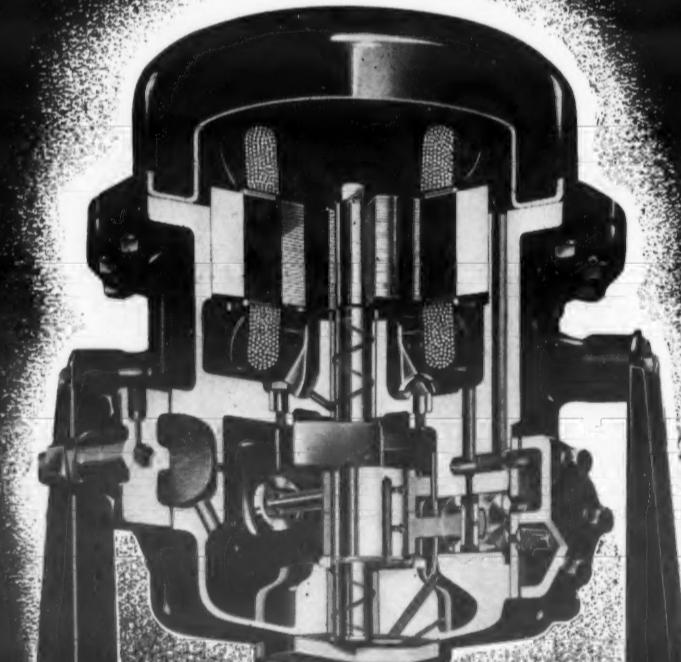
The crushed ice storage box has 3/4-inch galvanized oval steel coils.

On the street level are three service boxes and three counter displays, all fed by the 2-hp. compressor.

Unit	Overall Dimensions (In Feet)	Temperatures °F.	Room	Box	Coil
Counter Display	11 x 2 1/2 x 3	80	40	20	
Butter Rack	5 1/4 x 2 1/2 x 2	80	40	20	
Salad Display	6 x 2 1/2 x 7 1/2	80	42	20	
Pantry Box	6 x 2 1/2 x 8 1/4	90	42	20	
Bakery Box	6 x 2 1/2 x 8	100	42	20	
Kitchen Box	9 x 3 x 9 1/2	100	42	20	

The installation was designed and installed by Ferdinand J. Zoppel, president of the Columbus Refrigeration Co. in collaboration with W. T. Schumaker, Mills chief engineer.

## Only Universal Cooler has all of the features TO ASSURE MAXIMUM EFFICIENCY, LONG LIFE AND SATISFACTORY PERFORMANCE



**5 YEAR PROTECTION  
PLAN AVAILABLE**  
Covering major portion of the hermetically  
sealed Universal Cooler Unit

The new Universal Cooler hermetically sealed refrigeration machine not only fulfills the need for a top load, continuous operating, and long life unit . . . but "strikes" at the core of 60% to 75% of unit servicing by eliminating motor troubles and belt replacements, as well as large inventories of repair parts. Universal Cooler hermetically sealed units can be furnished in eight sizes, equipped with a condenser start motor or split phase motor. These units are also obtainable with a high side float. Our engineering staff is available for a study of your requirements. Write us today.

**UNIVERSAL COOLER CORPORATION, Marion, Ohio, U. S. A.**

Creative Design . . . Application Engineering . . . Precision Manufacture . . . Economical Production

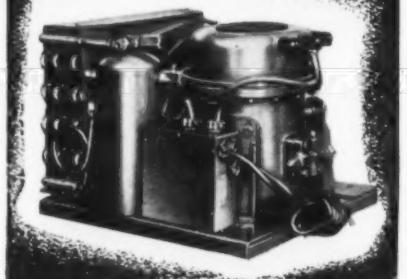
**EFFICIENT DESIGN.** Engineered throughout with many new and advanced developments. Among them are: vertical shaft for keeping load off bearings and adding longer life to the unit . . . cylinder heads air-cooled by condenser fan . . . new construction places responsibility of maintaining a constant air gap where it belongs, on the compressor casting.

**POSITIVE LUBRICATION.** Positive operating oil pump (3 1/2 gals. per hour capacity) provides force feed lubrication to all bearings, piston and wrist pins . . . metered lubrication to valves; perfect lubrication throughout. Copious oil movement provides uniform temperature to all moving parts.

**MAXIMUM ENDURANCE.** Definitely assured through a scientific analysis and distribution of wear resisting metals (S. A. E. 64 high lead bronze) affecting all bearings, connecting rods and cylinders . . . diamond boring for perfect alignment . . . the elimination of vibration through proper balance and weighing.

**LOW COST SERVICING.** Accessibility plays a vital part in this new Universal Cooler design. This applies to cylinder heads and valve plates . . . rubber in shear suspension for compression motor assembly, readily replaceable. Unit can be rigidly mounted.

**COMPACTNESS**  
is one of the virtues of the new Universal Cooler hermetically sealed unit. It reflects both design efficiency and operating dependability.



## POLARTRON

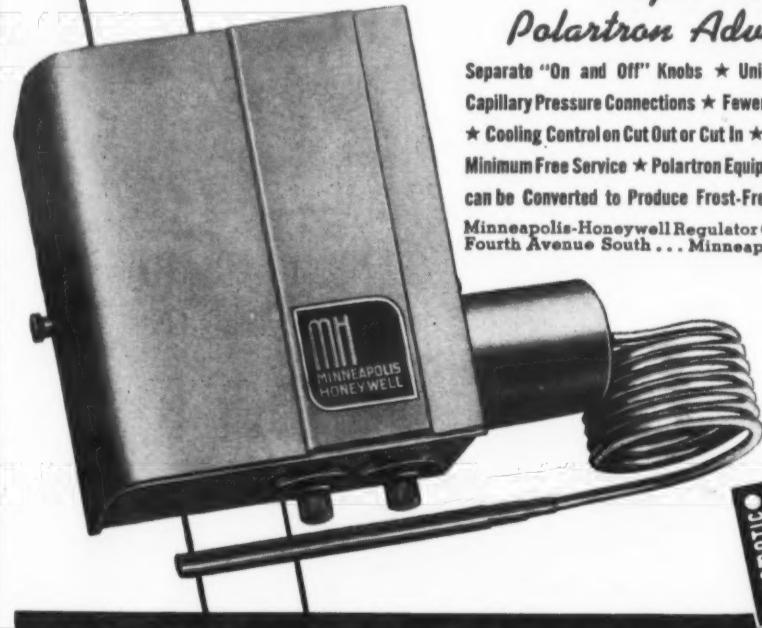
A SINGLE CONTROL  
Universal in Application

FOR PRESSURE CONTROL UP TO 1 H. P. A. C.

Eight Series 40  
Polartron Advantages

Separate "On and Off" Knobs • Universal Range •  
Capillary Pressure Connections • Fewer Models to Stock  
★ Cooling Control on Cut Out or Cut In • No Short Cycling  
Minimum Free Service • Polartron Equipped Compressors  
can be Converted to Produce Frost-Free Constant Cold

Minneapolis-Honeywell Regulator Company, 2807  
Fourth Avenue South . . . Minneapolis, Minnesota



AUTOMATIC CONTROLS  
MH

**MINNEAPOLIS  
HONEYWELL** *Control*  
REFRIGERATION

## **Stewart-Warner Nets \$1,470,804 In 1940**

CHICAGO—Net profit of \$1,470,804, or the equivalent of \$1.18 per share, has been reported for 1940 by Stewart-Warner Corp. and subsidiaries. Net profit in 1939 was only \$553,224, or 45 cents per share.

Two dividends of 25 cents each were paid out of 1940 earnings, while only one was paid in the previous year.

Sales for 1940 totaled \$29,272,500, a 13% increase over 1939 sales of \$25,825,829. Income taxes for 1940 totaled \$828,037, an increase of 564% over the \$124,715 paid for the previous year.

In his report, Mr. Knowlson showed in tabular form the results of the management's policy over the last five years of increasing working capital and declaring dividends on an equitable basis.

In regard to the company's participation in defense work, Mr. Knowlson's report stated that:

"By and large the year has been one of preparation, rather than production. Actual billings on defense contracts this year have amounted to less than 2% of our sales, but the backlog of unfilled orders is an amount somewhat in excess of 25% of last year's total corporate business."

"As a sub-contractor, the company is preparing to produce parts for airplane engines, ammunition boxes for tanks, and many other articles of military equipment."

## **Texas Meeting Covers Food Handling Advances**

(Concluded from Page 1, Column 1) applications of an immersion type quick freezing system will be explained.

Refrigeration requirements in the processing and marketing of milk and milk products, and the design and application of refrigerating equipment for the dairy industry, will be the main topics up for discussion at the second session of the conference.

Third session, which will end the first day's activities, will consist of a dinner meeting at which the history of refrigeration progress in Texas and throughout the South will be outlined.

A symposium on frozen food locker storage will round out the conference program on the second day. Servicing of locker plant refrigeration equipment, the outlook for both rural and urban plants, and the relationship between locker patrons and locker plants, will be the chief topics of discussion.

## **Marlo Coil Co. Starts Addition To Plant**

(Concluded from Page 1, Column 2) plete utility group, centrally located, comprising boiler room, coal and ash bins, locker rooms and showers, and providing a permanent location for the office and finishing and shipping facilities.

On a 1½ acre site, the Marlo plant's first unit was erected in 1931. Second unit, doubling the capacity of the original plant, was completed in 1937. The unit now about to be erected will provide four times the original capacity. Ultimate expansion planned for a later date will provide eight times original capacity.

The structure, one story in height with part basement, will be of brick and concrete and measure 100 x 140 feet.

## **Midwest Mfg. Co. Sales Up 74% In First 2 Months**

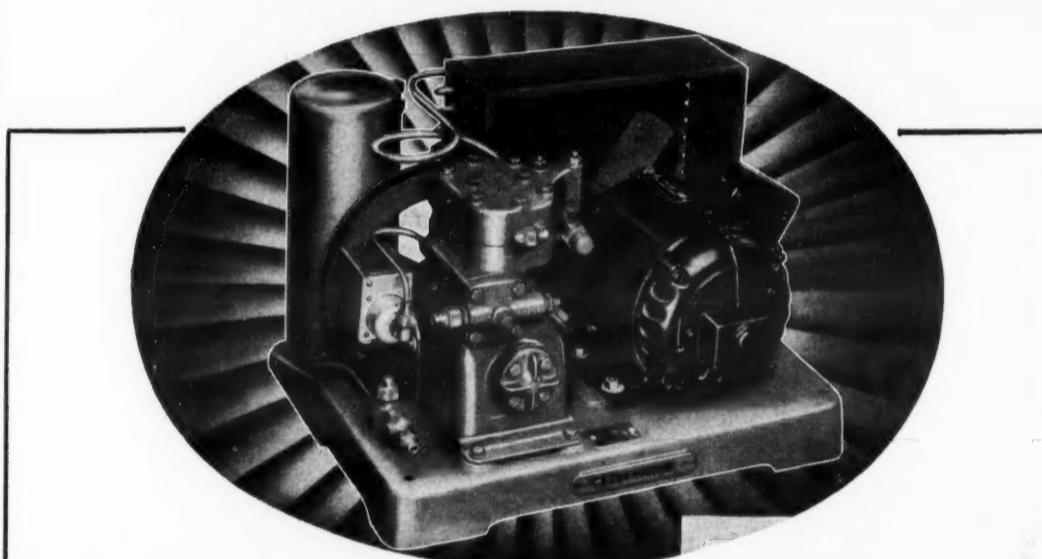
GALESBURG, Ill.—Commercial refrigerator sales by Midwest Mfg. Co., which manufactures a 30 model line of commercial refrigerator cabinets, was 74% greater in the first two months of this year than it was for January and February of 1940, reports J. C. Battles, sales manager.

This increase was not brought about by any large government orders, says Mr. Battles, but represents a growth both in distributor orders, and from the appointment of new distributors. Trade press advertising has brought an increasing flow of inquiries, Mr. Battles declares.

# **Go After that Commercial Business the Profitable KELVINATOR Way!**

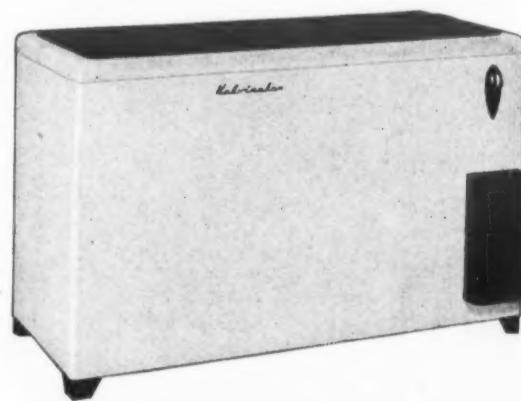
*Get More—*

**Get KELVINATOR**



### **FROSTED FOOD CABINETS**

4, 6, 8, and 12 Hole Models, scientifically designed for efficient storage of frosted foods. Flip-flop lids with rubber hinges. Condensing unit on slide-out base.



### **BOTTLED BEVERAGE COOLERS**

Sealed against moisture, rusting and air leakage. For wet or dry cooling. Model BC-154, available in green or white, holds 154 seven ounce bottles. Model BC-266, available in white, holds 266 seven ounce bottles. Self-contained, including condensing unit.

### **KELVINATOR CONDENSING UNITS**

Precision-built by Kelvinator and designed to give quieter performance, more economical operation, and long life. Available in a complete range of air and water cooled models to suit various types of installations.

### **REACH-IN REFRIGERATORS**

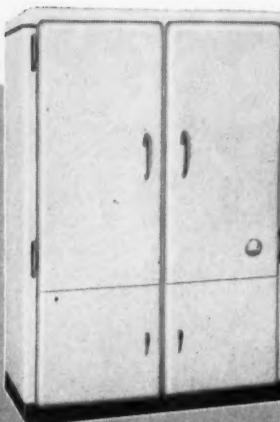
Two models in the most wanted sizes—model SR-20 with 20.45 cu. ft. capacity and 25.7 sq. ft. shelf area, and model R-30 with 30.4 cu. ft. capacity and 38.5 sq. ft. shelf area. Forced air cooling. Ice Makers available on both models. Self-Contained, including condensing unit—ready to run.

### **Parts and Supplies for Profitable Service Work**

Kelvinator offers a complete line of quality refrigeration parts and supplies which you can recommend and install with confidence. Prompt deliveries are made possible by a nationwide system of strategically located stocks.

Gentlemen: I want to know more about Kelvinator Commercial, Parts and Service Division. Kelvinator Commercial Corporation, Parts and Service Division, Nash-Kelvinator Corporation, Parts and Service Division, Kelvinator Commercial Line. Kelvinator Refrigeration Parts and Supplies. Name: \_\_\_\_\_ Firm Name: \_\_\_\_\_ Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Dept. K-106

**KELVINATOR COMMERCIAL, PARTS AND SERVICE DIVISION  
Nash-Kelvinator Corp. • Detroit, Mich.**



**MOST COMPLETE  
'REACH-IN' LINE  
ON THE MARKET!**

Here's the widest selection of sizes and styles the industry affords—a model for every need. Distinguished by superb styling, fine construction and outstanding value.



Model 120 (above) has 12 cu. ft. capacity—the newest member of the "Midwest 'Reach-in'" family.

Model 700 (right) another new model has 71.5 cu. ft. capacity. In between is a full range of sizes and equipment. Write for full details now.

★★★  
*Midwest*

**MFG. COMPANY**  
Galesburg, Ill., U.S.A.

Export Division, Merchandise Mart, Chicago

## **TWICE AS MUCH FINISH PROTECTION**

THE NEW Crosley refrigerator is designed not only for today but also for the day after tomorrow. Extra space for both food and drink provided by the Super Shelvador brings "twice as much food to the front."

With new convenience features and advanced styling, Crosley stresses not only the need of the refrigerator buyer but provides new sales appeal as an aid to those who sell it.

Assuring finish dependability and lasting beauty, in keeping with Crosley long-lived mechanical efficiency, Crosley continues Bonderizing in the finishing system. Bonderizing and baked enamel assures double protection for the cabinets. Years of trouble-free service has proven the efficiency of Bonderizing for rust prevention and finish adhesion.

**PARKER RUST PROOF COMPANY**  
2197 E. Milwaukee Ave. Detroit, Michigan



**PARKER**  
Processes CONQUER RUST  
BONDERIZING • PARKERIZING

### **Added Starter**



New 6-cu. ft. refrigerator introduced last week by Hotpoint sells for around \$130.

### **Oklahoma City Dealers Use Co-operative Ad**

OKLAHOMA CITY—Five dealers and Oklahoma Gas & Electric Co. cooperated in running a full-page advertisement in a recent issue of the Daily Oklahoman, featuring pictures of appliances handled by the dealers and a view of the kitchen of the utility's home service department. Caption over layout read, "Oklahoma City's Modern, Attractive Appliance Stores Make This the Central Market of the Great Southwest."

Participating dealers were: Oklahoma Tire & Supply Co., Philco radios and Leonard refrigerators; Tee Thagard Music Co. and Harbour-Longmire, G-E; DuLaney's, Electrolux; O.K. Furniture Co., Norge.

### **Popular Model In 1941 Kelvinator Range Line**

Popular-priced model in Kelvinator's 1941 line of electric ranges is the ER-413, which has a suggested delivered price of \$139.95. With combination oven timer and Minute-Minder the model sells for \$149.95.



## **Kelvinator Cuts Range Prices, Puts Basic Convenience Features In All Models**

DETROIT—Prices \$20 to \$30 lower than last year, a simplified line concentrated in three models, and a new type of selling tool called the "Salesmaster" top Kelvinator's electric range selling program for 1941, modeled in many respects after the electric refrigeration program inaugurated by the company last year.

The new line consists of the model ER-411 at \$99.95; the ER-413 at \$139.95; and the ER-417 at \$169.95. Prices are for delivery in the kitchen anywhere east of the Rocky Mountains.

The 1941 electric range line is arranged in such a way that all three models include basic convenience and construction features that can be used in selling the entire line. These include a full 39-inch width; utility drawers on ball-bearing rollers; a recessed, sloping switch panel; an oversize oven with automatic pre-heat cut-off; a scotch kettle; ring or rod type surface units; porcelain enamel exterior; one-piece construction, and one-piece top with wide back splash.

Leader model, ER-411, priced at \$99.95, has oversize, two-unit oven with a hydraulic thermostat, automatic pre-heat cut-off, "brolly" and "bake" pilot lights, and a black porcelain heat director. Upper oven unit is a 3,000-watt unit; lower unit is a 2,400-watt unit.

Standard in every oven is a deep combination broiler and roasting pan with a black porcelain enamel finish and a nickel-finished grill. The oven also has no-tilt, safety-stop shelves; a heat-seal, counter-balanced door with broil stop, and Fiberglas insulation.

Scotch kettle in the ER-411 has a 6-quart capacity and a five-speed control.

Two types of surface units are available, and the customer can have his choice of either one at no extra cost. These are the ring-type unit and the rod-type unit. On the ER-411 these units have five cooking speeds.

One-piece, welded-steel body construction is used on all Kelvinator electric ranges.

The ER-411 has a porcelain finish inside and out; an acid-resisting cooking top, and a utility drawer.

Available at slight extra cost is a top light, oven timer, and condiment set, converting it into an automatically controlled range, and providing a step-up between the \$99.95 model and the \$139.95 model. With top light, oven timer, and condiment set the ER-411 sells for \$114.95.

Besides all basic features found on the ER-411, the ER-413, which sells for \$139.95, has a surface unit with a type of control that provides seven stages of heat, available in either the rod or ring type unit.

A flood light, recessed in the back of the oven and protected by a heat-resisting lens, switches on automatically when the oven door is opened.

Over each surface unit switch is a small signal light that floods the switch knob when it is turned on. This not only enables the housewife to tell when a surface unit is on,

but enables her to see the various settings on the switch knob.

An improved scotch kettle with a self-basting cover and an adjustable trivet is standard on the ER-413. It has a seven-speed unit.

The ER-413 has two additional utility drawers, or three in all. The scotch kettle may be mounted in a utility drawer to leave space for an extra surface unit.

A non-glare top light is standard equipment on this model. A combination oven timer with Minute-Minder and a condiment set are available at extra cost, and bring the total cost of the ER-413 to \$149.95.

Top model in the line is the ER-417, selling for \$169.95. In addition to all the basic features and those found in the ER-413, the ER-417 offers a fully equipped scotch kettle with a self-basting cover, a 2-quart clamp cover insert pan, and an adjustable trivet. It also has a wire basket and a thermometer for deep-fat frying.

Standard equipment includes a special compartment for warming food. Switch and signal light for the warmer drawer is mounted on the back splash, and the warming temperature is automatically controlled by a thermostat.

A feature is the Selector Switch, which enables the user to select the unit she wants to automatically operate. Units controlled by this switch include the scotch kettle, the oven, and the appliance outlet.

Self-computing timer and Minute-Minder are designed for and built into the back splash.

A completely new selling tool for salesmen is offered by Kelvinator to help promote its 1941 electric range line. Measuring 15 x 18 inches in size and called the Salesmaster, the presentation is claimed to be the most elaborate and thorough sales help ever offered on electric ranges.

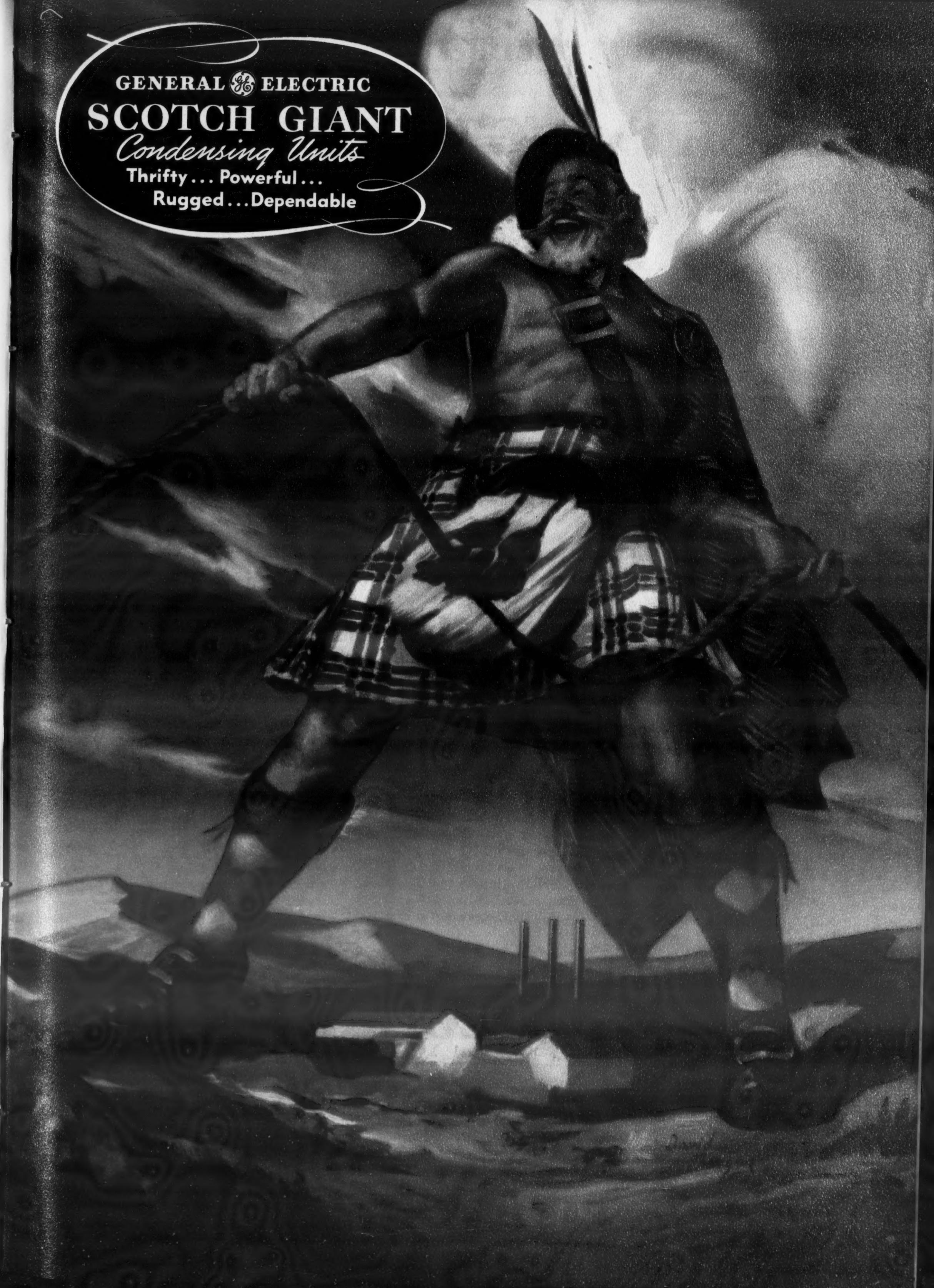
Showing "What Happens When a Kelvinator Electric Range Comes Into Your Home," the Salesmaster first sells the advantages of electric cooking and then sells the Kelvinator range. The presentation is done in four colors and is 99 pages long.

### **Iowa-Nebraska Light Co. Sale Is Consummated**

LINCOLN, Neb.—Sale of the Nebraska electric properties of the Iowa-Nebraska Light & Power Co. to the Consumers Public Power district of Columbus, Neb. for \$19,465,000 has been approved by the Federal Power Commission.

The Iowa-Nebraska utility has taken a leading part in the modern merchandising of appliances and will transfer its holdings in about 40 Nebraska towns and cities to the consumer group, which, with this sale consummated, will have taken over all but two of the major private utilities of the state. Phil R. Hockenberger, vice president of the consumer company, said the consumers would maintain the utility's present merchandising program.

GENERAL  ELECTRIC  
**SCOTCH GIANT**  
*Condensing Units*  
Thrifty... Powerful...  
Rugged... Dependable

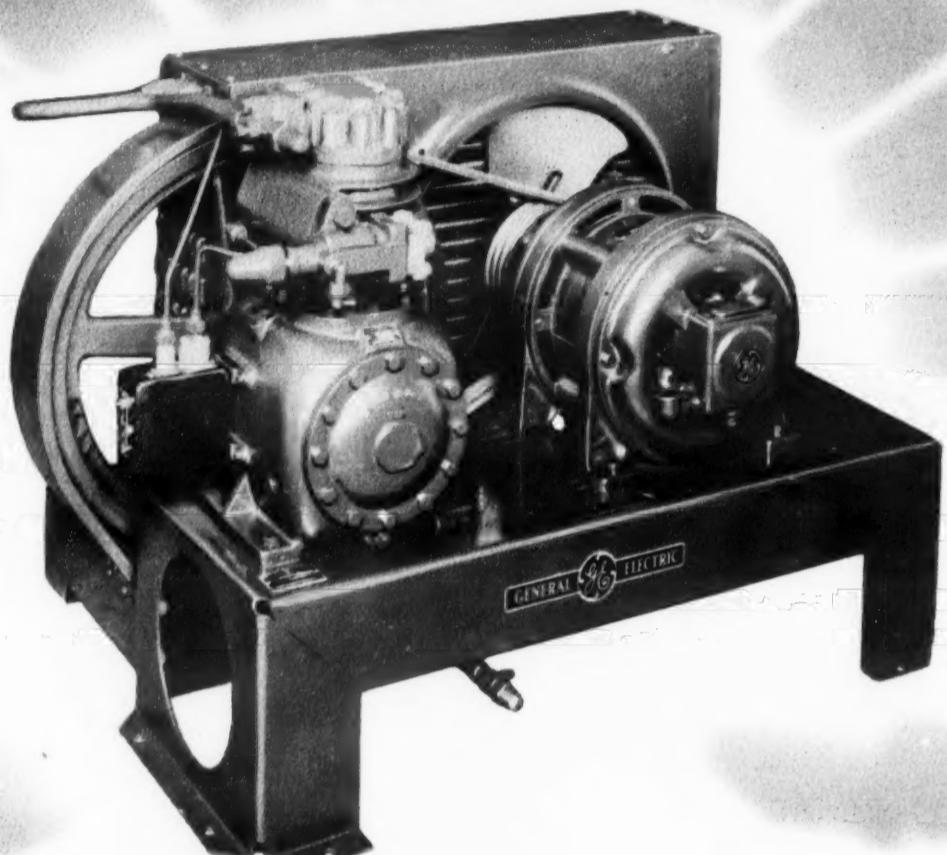


GENERAL  ELECTRIC

SCOTCH  
CONDENSING



GIANT  
UNITS



...make the HEART of your refrigeration  
rugged...powerful...dependable...thrifty

It's not the gloss...not the streamlining...not the gadgets...it's the *condensing unit* that should govern your choice of commercial refrigeration. For that is what decides whether your power bills will be low or high—whether you will see the repair man seldom or often!

In buying new equipment (or replacing refrigeration machinery) you'll get utmost economy with the G-E Scotch Giant condensing unit. Years of research in the world-famous G-E laboratories, and performance in the field, have helped earn these units the reputation of being the finest and lowest

cost commercial refrigerating machines on the market...We can prove it to you detail by detail. The G-E Aphonic fan is 15% more efficient and 40% quieter than most...the condenser is non-corrosive...piston surfaces are machined to .0005 inch tolerance, and so forth. We could write books on the subject—and have.

Get the full story on G-E Scotch Giant condensing units—save money, time and temper in the present and future. No matter what you are planning to buy—or repair—get all the facts before you do. See your local G-E Distributor, or send the coupon.

GENERAL  ELECTRIC

GENERAL ELECTRIC CO., Div. 270, Bloomfield, N. J.

Yes, I am interested in efficient, low-cost refrigeration equipment. Without obligation, please send me booklet on General Electric Scotch Giant condensing units.

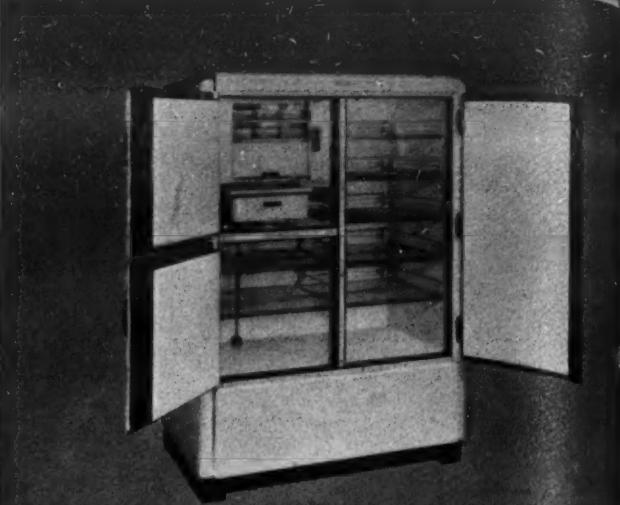
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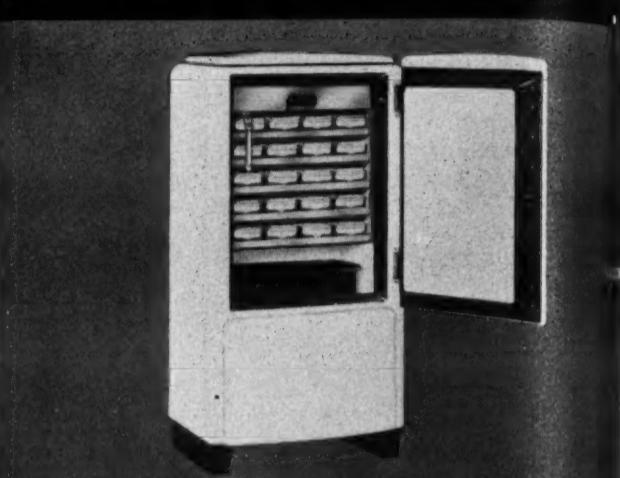
ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_

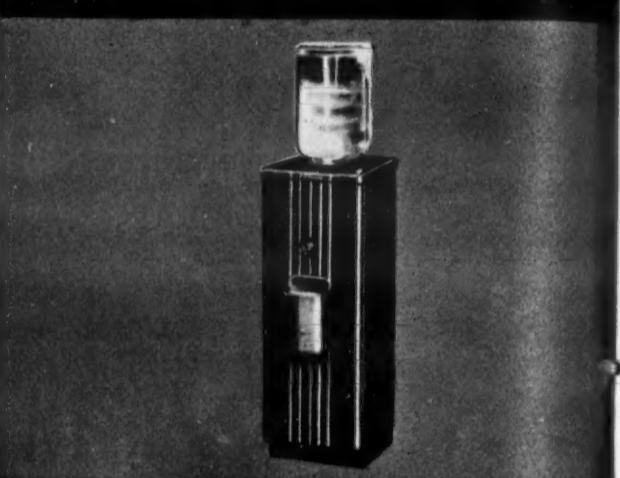
I am a manufacturer interested in quantity purchase of G-E Scotch Giant condensing units



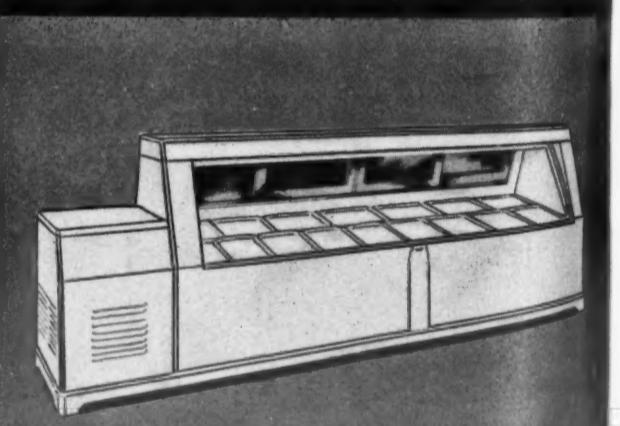
The  of Storage Cabinets



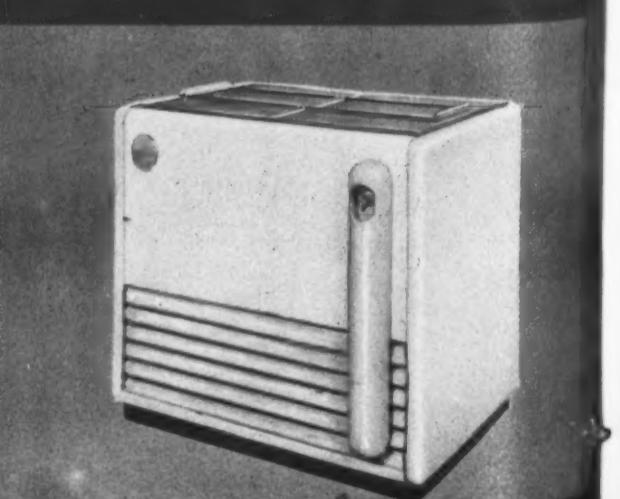
The  of Ice Cube Makers



The  of Water Coolers



The  of Display Cases



The  of Beverage Coolers  
and the  of every  
other good refrigeration product.

## Keeping 'Close' Trailer Atmosphere Comfortable



At the 1941 National Trailer Show which closed recently at Chicago trailers equipped with room coolers drew considerable attention. Carrier had room coolers in two of the trailers exhibited, the one shown in the picture being a deluxe "Chieftain" model, and the other a traveling laboratory for the Underwriters' Laboratories. Since the Federal government is thinking of using trailers for defense housing, they may represent an interesting potential market for room cooler equipment.

## Davison Heads Seattle Dealers Association

SEATTLE—W. Ward Davison, chief of the Z.D. Radio Corp. here, was elected president of the Radio, Music & Home Appliance Dealers Association at the annual meeting of the organization at the Gowman hotel, Feb. 20.

Henry Tague, radio and appliance buyer for Grunbaum Bros., was elected vice president. New directors appointed by Mr. Davison were: W. A. Watts, Watts Heating & Electric Co.; N. E. Congdon, manager of the radio and appliance department of Prottas & Levitt Furniture Co.; and Herbert Schoenfeld, Grunbaum Bros., retiring president of the association. Dave Allan was re-elected executive secretary.

## Huxel Electric Moves To New Location

GRANITE CITY, Ill.—Herman Huxel Electric Co. here, oldest General Electric retail dealer in the tri-city area of East St. Louis, Alton, and Granite City, moved recently to a new location at 1955 Delmar Ave., with a new showroom, business offices, and repair shop for all appliances. Annual anniversary sale features a model kitchen in operation, and offers special discounts on any appliance bought during the sale.

## Bucher &amp; McGill Open New Omaha Dealership

OMAHA, Neb.—Harold W. Bucher and J. B. McGill have opened Bucher-McGill Furniture Co., home furnishings store, at 2047 Farnam St., and will handle Norge refrigerators. George Vitt is manager of the home appliance department.

## New Offices For Matthews

DALLAS, Tex.—New offices are in progress of building for Matthews Engineering Co. of Dallas, refrigeration engineers and contractors.

## General Controls In Dallas

DALLAS, Tex.—General Controls Co. has opened offices at 1100 Cadiz St., Dallas.

## Appliance Dept. Added

NEW ORLEANS—Lawrence Furniture Co., 400 Carondelet St., has opened an appliance department featuring the Crosley line.

## Fingerhut, Hennen Open Minneapolis Outlets

MINNEAPOLIS—Two new appliance outlets have been opened here recently. Joseph Fingerhut, for many years in the appliance business, has opened a store at 7 E. Lake St., handling refrigerators, ranges, water heaters, and laundry equipment.

Hennen's Appliance Store has opened at 707 E. Lake St. James M. Hennen heads the organization which includes W. H. McCoy, C. S. Hilde, D. F. Moody, and R. E. Keller.

## W. G. Morrow Sets Up Own Appliance Dealership

DALLAS, Tex.—W. G. Morrow, formerly of the Montgomery Ward Co., has established the New Electric Store in Oak Cliff. This store, which will handle refrigerators and other electrical appliances, will maintain an all-electric kitchen display. G. E. Fowler, veteran appliance salesman, is sales manager.

## The Service Man's Notebook

By Henry Kronke

## Food Characteristics Important In Storage (Part 2)

Product	% Water	Spec. Heat	Average Freezing Temp.	Temp.	R.H. %	Storage		Respirat'n B.t.u./Lb./Day
						Storage Life	Days	
Ferns	..	..	24.0°	32°	95	1-4 mos.	..	..
Fruits, Dried	..	..	32-50°	70	1-2 yrs.	..	..	..
Fruits, Frozen	..	..	10-15°	..	6-12 mos.	..	..	..
Grapes	82	.92	27.5°	32°	82	8-14 wks.	0.66	..
Grapefruit	89	.92	28.5°	36°	87	8-10 wks.	..	..
Grape Juice	..	..	32-34°	..	..	..	..	..
Lemons	89	.91	28.0°	50°	82	2 w.-4 mo.	0.75	..
Lettuce	94	.90	31.0°	32°	92	2-3 wks.	3.0	..
Milk	87	.92	31.0°	32°	..	..	..	..
Mushroom	..	.90	30.2°	33°	82	2-3 days	..	..
Nuts	3	..	24.0°	33°	65	8-12 mos.	..	..
Oranges	87	.89	..	34°	82	1-2 mos.	0.22	..
Oysters, in Shell	80	.84	..	32°	..	..	..	..
Peaches	87	.92	29.4°	32°	90	2-4 wks.	0.85	..
Pears	83	.90	28.0°	31°	90	2-3 mos.	0.385	..
Peas, Green	74	.85	30.0°	32°	85	1-3 wks.	..	..
Pineapple, Green	..	.90	29.0°	40°	85	3-4 wks.	..	..
Pork	39	.51	..	35°	80	..	..	..
Potatoes	79	.85	29.0°	40-60°	80	..	0.75	..
Poultry, Dressed	74	.79	..	30°	70	..	..	..
Tomatoes, Green	95	.92	30.5°	50°	70	1-6 wks.	..	..
Veal	63	.70	..	35°	80	..	..	..
Vegetables, Frozen	..	..	..	0-18°	..	6-12 mos.	..	..
Wine	..	.90	..	55-60°	..	..	..	..
Yeast	..	..	..	45°	..	..	..	..

**NOW**

**fluorescent**

**LIGHTING**

AVAILABLE now in the new all steel Series 35 double duty cases.

The new "Fluorescent" light floods the case with a brilliant glow without loss of color to food displayed. This is an unbeatable combination — Seeger all steel construction — Seeger-made all porcelain — Air-conditioned and "Fluorescent" lighted.

All steel display cases for butchers, grocers, and delicatessen shops together with Seeger's outstanding line of commercial cabinets, are completely illustrated in beautiful colors in the new catalogues and mailing folders. If you have not received copies, advise us. They will be mailed at once.

**SEEGER REFRIGERATOR COMPANY**

SAINT PAUL, MINNESOTA

NEW YORK

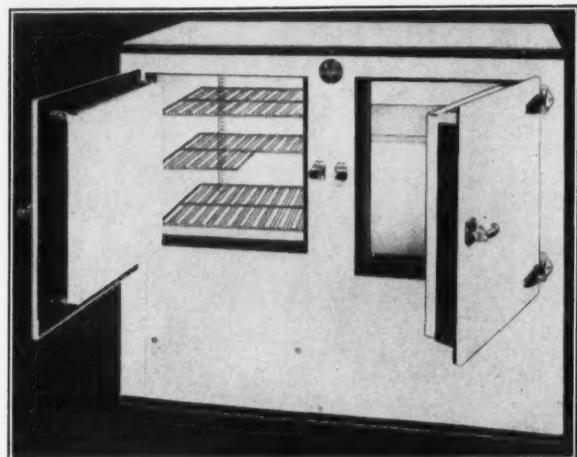
BOSTON

CHICAGO

LOS ANGELES

SAN FRANCISCO

## Farm Freezing of Foods Facilitated By Introduction of Special Equipment



Three temperature zones are available in this Model C1141 refrigeration unit introduced by Sanitary Refrigerator Co.

### Multi-Zone Cooling Featured In Sanitary Line of Food Freezing & Storage Units

FOND DU LAC, Wis.—Four-model line of food freezers for freezing and storage of frozen foods in the home has been introduced by Sanitary Refrigerator Co. here.

Three zones of cooling are provided by model C1141, which is claimed to hold 250 to 300 lbs. of frozen meat. A 4-cu. ft. compartment operates at normal above freezing temperatures, manually controlled. Fast freezer compartment operates at  $-8^{\circ}$  to  $0^{\circ}$  F., while the

frozen storage compartment is held at  $12^{\circ}$  F. A  $\frac{1}{4}$ -hp. open unit supplies refrigeration.

Table top, providing work surface, is finished in white porcelain, as is lining of doors, while remainder of interior and exterior is finished in white Permago with black trim.

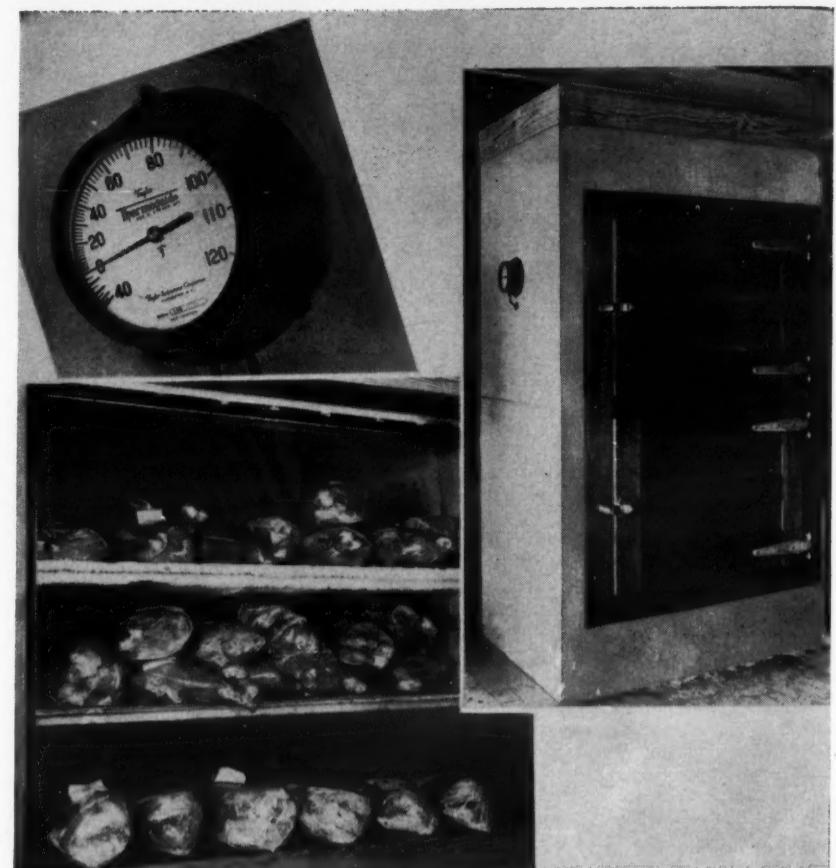
Models C841 and C1241 are two-zone freezers designed to eliminate seasonal butchering problems, with capacities of 7.8 and 11.2 cu. ft., respectively. Each has a quick

freezer of 2.2-cu. ft. capacity. Exterior finish is blue-gray Hammer-Tex, with galvanized interior lining. Fast freezer and freezing plates are heavy copper.

Because the refrigeration unit is housed in a compartment separate from the freezer, these two models can be supplied in end mounted application for remote installation when space requirements do not permit placing the chest in normal horizontal position. Model C841 is powered by a  $\frac{1}{4}$ -hp. open unit, model C1241 by a  $\frac{1}{3}$ -hp. unit.

Model C1141 is a frozen food storage chest with a capacity of 1.8 cu. ft. or 90 lbs. of meat. It is designed for sportsmen, locker renters, and households where commercially frozen foods, ice cream, etc. are frequently used. Exterior finish is white Permago, with trim and unit compartment panels in black. Interior has bright tin finish, and inside lining ends are rounded for added capacity and easy cleaning. Lift-off cover is galvanized steel lined. This chest is powered by a  $\frac{1}{4}$ -hp. hermetic unit.

Sanitary Refrigerator reports that Thos. L. Maher of Brimfield, Ill., who purchased a "three-zone" model recently, says that 25 to 30 such units have been sold in Peoria county. The cost is slightly more than that of ordinary mechanical refrigerators of similar capacity. The cold storage units are especially popular, Mr. Maher says, among farmers not situated close to trade centers where lockers are available.



Interior and exterior views of quick freezing and storage unit designed by a Rochester, N. Y. utility to meet farm needs. Refrigerated plates are used for shelving and all units are equipped with dial thermometer.

### Utility Builds Load on Rural Lines With Basement Quick Freeze Units

By Henry Knowlton

ROCHESTER, N. Y.—Individual farm freezers for the processing of meats, poultry, and vegetables have been installed in the basement of several rural residences here by the commercial refrigeration department of the Rochester Gas & Electric Co. R. D. Pike, who is in charge of

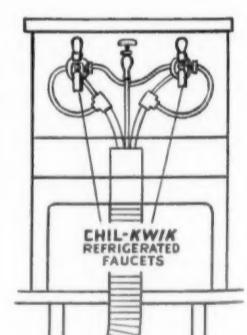
refrigeration sales for the utility, designed the special low temperature refrigerators, using York compressors.

Mr. Pike reports that while the market for these units has not been extensive to date, it is definitely (Concluded on Page 13, Column 1)

## New Profits for Alert REFRIGERATION MEN

in  
CHIL-KWIK

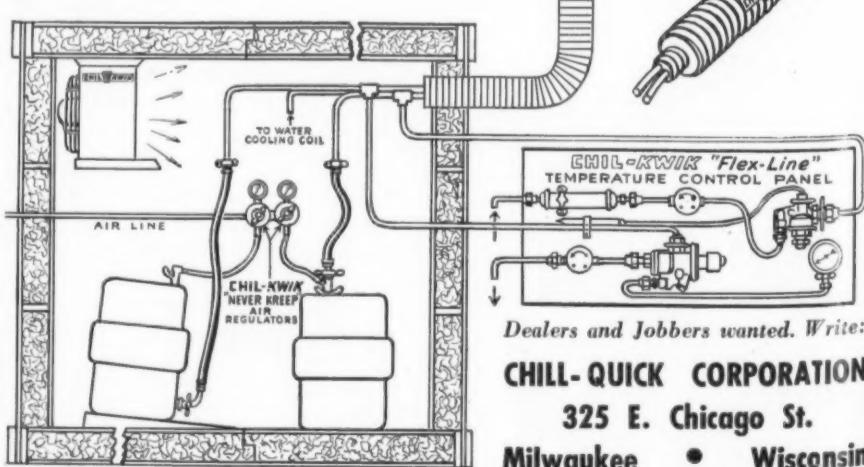
Refrigerated  
**FLEX-LINE**  
BEER LINE ASSEMBLY  
(Patents Pending)



REFRIGERATION MEN make extra profits with this exclusive new package item. Everywhere, beer dispensers need CHIL-KWIK "Flex-Line"—the refrigerated, insulated, flexible beer line assembly that gives positive temperature protection, whether it is ten feet long or a hundred.

"Flex-Line" is easily installed by anyone familiar with refrigeration. Comes in convenient stock sizes, or can be "tailor-made" to fit without cutting or adjusting. Regular combinations include as many as four refrigerated beer lines, plus water and seltzer lines if desired.

New Customers—extra profits are going to refrigeration men who feature exclusive "Flex-Line." Cash in on this great opportunity—get the details today!



Dealers and Jobbers wanted. Write:  
CHILL-QUICK CORPORATION  
325 E. Chicago St.  
Milwaukee • Wisconsin

## Stop that Profit Leak!

That's no *imaginary* profit leak.  
It's all too real.

On the average, retail appliance dealers stand to lose a part of their merchandise profit equal to approximately 3% of their time payment sales.

It goes to meet the special expenses and occasional losses incident to this type of transaction. You can easily figure how much it would amount to in your case.

And you can *STOP* it, by using the PROFIT PROTECTION RESERVE PLAN.

Don't let those extra dollars go over the dam or through the hole. Do what thousands of other progressive and successful appliance dealers have done. Call your nearest Commercial Credit office for details, or mail the coupon below.

MAIL THIS COUPON  
FOR A COPY OF THE NEW  
DEALER FINANCE MANUAL

COMMERCIAL CREDIT CORPORATION  
BALTIMORE, MD.

Send me the whole story

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City and State \_\_\_\_\_

## Reach-In Freezers Up Farm Profits

(Concluded from Page 12, Column 5) growing, and represents an important load building factor for the utility. It is one thing to run rural electric lines to farm homes scattered over a wide area, and another to get enough load to make the operation profitable, Mr. Pike asserts. Hence the low temperature freezers are important both to the refrigeration industry as a new market and to the utility as a load builder.

Up to the present time the farm freezers have been constructed in 36 cu. ft. and 72-cu. ft. capacities, one powered by a  $\frac{1}{2}$ -hp. compressor and the other by a  $\frac{3}{4}$ -hp. machine. Designed like reach-in boxes, both sizes are 6-ft. high, the smaller being 2-ft. by 3-ft. inside dimensions; the other 3-ft. by 4-ft. inside dimensions. Both are equipped with two doors.

### COST UNDER \$500

Insulated with 6 inches of cork, the freezers are equipped with four Zeropad shelves spaced from 8 inches to 16 inches apart. These shelves, which are served by two expansion valves, measure 22 inches by 30 inches in the small units, and 32 inches by 42 inches in the larger size. The small unit is available to farmers in the Rochester area at a cost of less than \$500, complete.

Mr. Pike states that the chief purpose of the individual sharp freezer room on the farm is to provide a food supply for home consumption that will be varied, ample, and economical throughout the year.

For satisfactory results Mr. Pike recommends the use of moisture proof parchment, cellophane, or Kodapak for wrapping foods to be frozen at from 10 to  $20^{\circ}$  below zero.

### POULTRY PROFITS

It has been found that sharp freezer rooms on the farm can sometimes be used effectively in connection with the commercial sale of products. For example, on a poultry farm, broilers raised to advantage in June and July can be held for the better market of August and September. One of the 32-ft. units was installed on the farm of George Johnson, near Webster, N. Y. and is now used to freeze broilers for the retail trade that comes to the farm.

In the past Mr. Johnson had to work from early morning until late at night—on Saturday, killing and dressing fresh broilers for the trade. With the freezer in operation it is now possible for Mr. Johnson to kill, dress, and freeze the broilers at odd periods through the week, building up a backlog to meet the Saturday demand.

Cost of operation has been found low enough to make this method of food preservation economical, Mr. Pike says. For normal loading and usage, it has been found that the small freezer can be operated for 90 kwh. per month (\$2.50 in the Rochester area) and the larger unit for 150 kwh. per month (\$3.50 in the Rochester area).

### WHY FARM FREEZERS?

The farm freezer units have been found to have certain definite advantages, listed by Mr. Pike as follows:

1. Convenience both for freezing and use of products with a saving in transportation costs to and from a central storage.

2. Allows for immediate freezing, after harvesting, thus improving quality of products.

3. Storage conditions can be independently controlled to fit the individual needs.

Commenting on the success of the farm freezers now in use, Mr. Pike says:

"We do not presume for a moment that the individual farm freezer will replace the central locker storage. However, we feel that it has a place in the field of quick freezing, supplementing central locker storage plants that have been so popular in the West, but that for some reason or other have not gained a foothold in this part of the country.

"Obviously the central locker storage simplifies the problem of cutting, preparation, and wrapping by having available an expert attendant to do these things for the individual farmer. On the other hand, there are certain definite advantages to individual farm storage, which are named above."

## DOES YOUR REFRIGERATION EQUIPMENT HAVE SHORT LEGS?

A short legged guy can finish near the front of the race . . . if he runs fast enough. But the boy with the long, rhythmic stride does less work to cover the same ground. It's like this with refrigeration equipment too . . . long stroke, slow-speed PAR units accomplish more work with less wear and tear.



# PAR

## REFRIGERATION EQUIPMENT

**PAR** Refrigeration equipment has been engineered for peak efficiency and maximum economy. Crankshaft type compressors with multiple ring pistons do more work at slower speed . . . pull temperatures down faster at less power cost . . . are good for extra years of trouble free service because of less wear and tear!

**PAR** precision engineering is evident in the most minute detail . . . for PAR gives you a complete unit, trim of line and ruggedly simple in design. On the record of hundreds of PAR refrigeration units in daily operation nation-wide, you can expect more for your money when you put PAR to work for you!

### THERE'S A PAR UNIT FOR EVERY JOB • SEE YOUR JOBBER

#### ALABAMA

MOBILE—MOBILE REFRIGERATION SUPPLY CO.  
MONTGOMERY—TEAGUE HARDWARE COMPANY  
**ARIZONA**  
PHOENIX—J. CARL WHITE COMPANY  
**CALIFORNIA**  
FRESNO—ARBELL REFRIGERATION SUPPLY CO.  
LONG BEACH—REFRIGERATION SUPPLIES  
DISTRIBUTORS  
LOS ANGELES—REFRIGERATION SUPPLIES  
DISTRIBUTORS  
OAKLAND—CALIFORNIA REFRIGERATOR COMPANY  
SACRAMENTO—HINSHAW SUPPLY COMPANY  
SAN DIEGO—REFRIGERATION SUPPLIES  
DISTRIBUTORS  
SAN FRANCISCO—CALIFORNIA REFRIGERATOR CO.  
**CONNECTICUT**  
NEW HAVEN—RESCO, INC.  
**FLORIDA**  
JACKSONVILLE—BOWEN REFRIGERATION  
SUPPLY, INC.  
MIAMI—BERNER-PEASE COMPANY  
TAMPA—BOWEN REFRIGERATION SUPPLY, INC.  
WEST PALM BEACH—MOTOR PARTS &  
EQUIPMENT CO., INC.

#### GEORGIA

ATLANTA—BOWEN REFRIGERATION SUPPLY, INC.  
MACON—LOWE ELECTRIC COMPANY  
**ILLINOIS**  
CHICAGO—AUTOMATIC HEATING & COOLING CO.  
CHICAGO—H. W. BLYTHE COMPANY  
**INDIANA**  
INDIANAPOLIS—F. H. LANGSENKAMP COMPANY  
SOUTH BEND—F. H. LANGSENKAMP COMPANY  
**IOWA**  
CEDAR RAPIDS—DENNIS REFRIGERATION SUPPLY  
COMPANY  
DAVENPORT—REPUBLIC ELECTRIC COMPANY  
DES MOINES—DENNIS REFRIGERATION SUPPLY  
COMPANY  
SIOUX CITY—DENNIS REFRIGERATION SUPPLY  
COMPANY  
WATERLOO—WINTERBOTTOM SUPPLY COMPANY  
**KANSAS**  
WICHITA—HOWARD SUPPLY COMPANY  
**KENTUCKY**  
LEXINGTON—UNITED SERVICE COMPANY, INC.  
LOUISVILLE—S. W. H. SUPPLY COMPANY

#### LOUISIANA

NEW ORLEANS—ENOCHS SALES COMPANY

#### MARYLAND

BALTIMORE—PARKS & HULL APPLIANCE CORP.

#### MASSACHUSETTS

PITTSFIELD—AIRD-DON COMPANY  
SPRINGFIELD—C. P. PAYSON COMPANY  
WORCESTER—STANDARD SUPPLY COMPANY, INC.

#### MICHIGAN

FLINT—LIFSEY DISTRIBUTING COMPANY  
GRAND RAPIDS—B. F. HARRIS & SON

#### MINNESOTA

MINNEAPOLIS—REFRIGERATION & INDUSTRIAL  
SUPPLY COMPANY

#### MISSOURI

KANSAS CITY—FORSLUND PUMP & MACHINERY  
COMPANY

ST. LOUIS—BRASS & COPPER SALES COMPANY

#### NEBRASKA

LINCOLN—WICKHAM SUPPLY COMPANY

OMAHA—INTERSTATE MACHINERY & SUPPLY CO.

#### NEW JERSEY

NEWARK—T. W. BINDER COMPANY

#### NEW YORK

ALBANY—AIRD-DON COMPANY  
BROOKLYN—COLEMAN ELECTRICAL SUPPLY  
COMPANY, INC.

BUFFALO—ROOT NEAL & COMPANY

KINGSTON—AIRD-DON COMPANY

NEW YORK—FIDELCO INDUSTRIES, INC.

PLATTSBURG—AIRD-DON COMPANY

SCHENECTADY—AIRD-DON COMPANY

SYRACUSE—CENTRAL SERVICE SUPPLY COMPANY

TROY—AIRD-DON COMPANY

#### NORTH CAROLINA

CHARLOTTE—HENRY V. DICK & COMPANY

GREENSBORO—HASCO, INC.

RALEIGH—HENRY V. DICK & COMPANY

#### OHIO

AKRON—PERCY G. HANSEN

CINCINNATI—MERKEL BROTHERS COMPANY

CLEVELAND—DEBES & COMPANY

COLUMBUS—REFRIGERATION ELECTRIC  
SUPPLY COMPANY

#### CANADA

MONTRÉAL, QUÉBEC—RAILWAY & ENGINEERING  
SPECIALTIES, LTD.

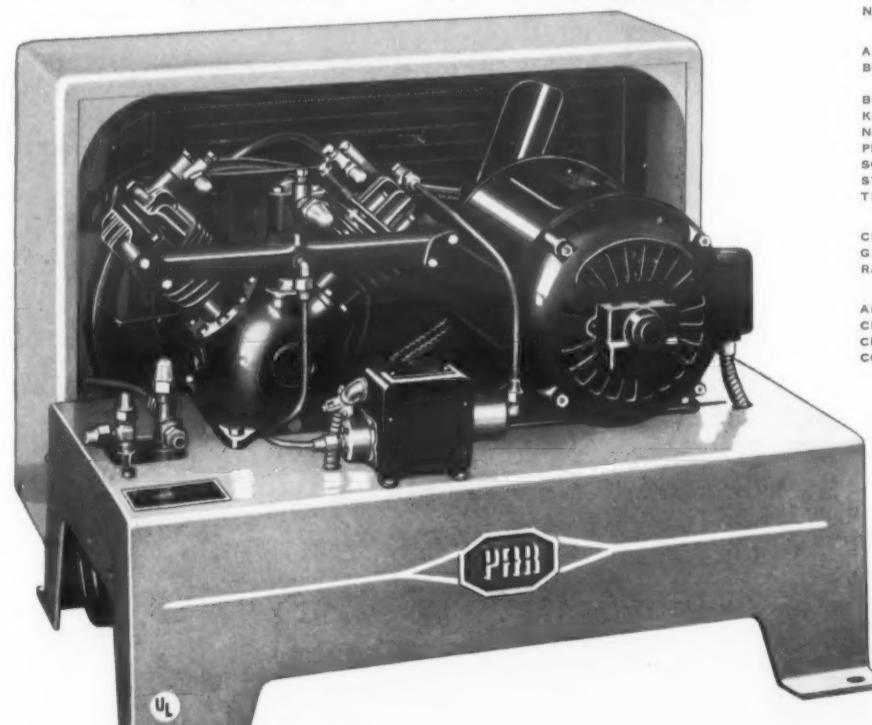
TORONTO, ONTARIO—RAILWAY & ENGINEERING  
SPECIALTIES, LTD.

VANCOUVER, BRITISH COLUMBIA—FLECK  
BROS., LTD.

WINNIPEG, MANITOBA—RAILWAY & ENGINEER-  
ING SPECIALTIES, LTD.

#### EXPORT DEPARTMENT

MELCHIOR, ARMSTRONG, DESSAU COMPANY, RIDGEFIELD, N. J.



The heavy duty air-cooled PAR here pictured is Model HA-15, 1 1/2 H.P. 4-cylinders. There is a correct size for every job . . . 30 models . . . two and four cylinder compressors . . . 1/5 H.P. to 5 H.P.

MODERN EQUIPMENT CORP., DEFIANCE, OHIO • U. S. A.

## Former SAC Men Start New Unit Cooler Firm

NEW YORK CITY—J. W. Stewart and Paul Harvey, formerly eastern sales manager and New York retail sales manager, respectively, of Standard Air Conditioning, Inc., have organized Unit Air Conditioning, Inc., with headquarters at 37 West 39th St. here. The new organization is composed entirely of former Standard Air Conditioning employees.

The company will merchandise a complete line of window ventilators, room coolers, and air conditioning for the home, office, and store field.

## No Room For A Snake In This Industry

This is the snake that stopped the motor that ran the system that cooled a florist's refrigerator—but lost his head doing it.



## 'Counselor' Service on Store-Planning Ups Sales For New Kansas City Firm

KANSAS CITY, Mo.—Effective use of an unusual "merchandising counselor" service for operators of stores and super-markets has rocketed the Commercial Equipment Corp. into the forefront of the commercial refrigeration picture in this territory in the first six months of its business life.

Organized only since last October, Commercial Equipment is operated by two former Koch Refrigerators men—M. C. Reefer, refrigeration engineer, and H. R. Lorsch, who formerly was supervisor of the Koch field organization. The company is distributor of Koch equipment and Frigidaire commercial condensing units in western Missouri and the state of Kansas, with headquarters here and a branch office in Wichita.

### CONSTANT MAIL PROMOTION

An aggressive and persistent program of direct-mail advertising is a backbone of the company's promotional campaign on the various types of equipment it handles. Special mailing lists are maintained for each separate type of equipment, and one or more of the lists are constantly in active use in a campaign of one sort or another.

A variety of methods have been used to secure names of prospects for commercial refrigerating equipment. One of the most successful early methods was the use of a return postcard in one of the regular mailings, offering the merchant a

free check-up service on his refrigeration equipment. This check-up included free handling of any minor adjustments which might be necessary, as well as minor repair service.

Aim of the offer was to give Commercial Equipment's service men an opportunity to thoroughly inspect the merchant's equipment, and to turn his name over to the sales department if he stacked up as a likely prospect for new equipment in the near future.

### STORE-PLANNING SERVICE

Far and away the most effective business-getting method used by the company, however, has been its "merchandising counselor" service, a variation in the usual store-planning service which enables the merchant to actually see, in miniature, how his store would look after it has been made over with new equipment.

In charge of this store-planning service is Glynn Stephens, who has the title of merchandising counselor, and who devotes his entire time to helping merchants in Commercial Equipment's territory rearrange, lay out, and plan their places of business. A man of considerable experience in the store-planning field, Mr. Stephens has done an effective job in impressing prospects with the extra-profit possibilities of scientifically designed store layout and equipment.

Commercial Equipment's 25 salesmen, working out of the Kansas City and Wichita offices, dig up plenty of new business on their own hooks, with the merchandising counselor service supplementing their efforts and raising the average-sale level.

In connection with its store-planning service, Commercial Equipment uses a model set which Koch makes available to its distributors. This set consists of several hundred pieces of miniature store equipment, together with shelves, floor, walls, etc. so that the merchant can see how his store will look after it has been remodeled. After a store arrangement has been completed in miniature to the merchant's satisfaction, it is photographed and used in the actual planning of the new layout.

### HOME SHOW DISPLAYS

Displays at various shows also have proved business-builders. At the recent Better Homes Show in the municipal auditorium, Commercial Equipment displayed a large air conditioner and a "Pure Aire" kitchen. The company also will exhibit at the Food Show to be held here during March.

Strong tie-ups have been made with various territorial distributors of beer and ice cream, and as a result much cooperation has been obtained, especially in the sale of beer-cooling equipment, which brewery salesmen help to promote. In addition to commercial refrigeration, the company distributes a complete line of market equipment, and has a direct-mail campaign under way at present among some 20,000 grocers, butchers, packers, etc. who use this type of equipment.

Three of the company's 25 salesmen specialize on industrial accounts, working through architects and contractors to promote sales of water coolers, truck refrigeration, locker plants, cold storage plants, etc.

None of Commercial Equipment's salesmen works on commission alone. All men are on a salary-and-commission basis, with the commission serving as an impetus toward larger unit sales. Commissions are based on one-third of each sale earning a 33 1/3% gross profit.

Another good source of new equipment prospects for the company has been its regular advertisements in the "Business Opportunities" columns of local "classified" sections. Typical of these advertisements is a recent one, which read:

"Super-Markets are money-makers. See us regarding store lay-outs, equipment, financing of your present market so that you may compete successfully."

The advertisement carried a blind box number, and was responsible for a number of inquiries. With this interest as a starter, Commercial Equipment relies on its "merchandising counselor" service to provide the entering wedge for sales.

### Refrigeration COPPER TUBING

NO bare hands touch Superior Copper Tubing over 1000 feet. It passes through the cooler and the chemical bath, through the annealing furnace, and to assure its absolute cleanliness it is mechanically wrapped with moisture proof paper. There is no better tubing for refrigeration than Superior.

**PENN BRASS & COPPER CO., INC.**  
POWELL AVE., ERIE, PENNA.

## Now You Tell Us About Your Crazy Service Calls

CONCORD, N. H.—This is the story of a snake that sought out a refrigerating system to warm himself and wound up by losing his head.

Knoll Crest Gardens, a local florist's shop, reported to H. E. Humphreys, Servel commercial refrigeration dealer, that the motor on its commercial refrigeration machine persistently blew fuses. The service man answering the call removed the end plate and found a snake (or what remained of him) wrapped around the shaft, brushholder, and short circuiting necklace.

The snake had apparently crawled in the motor while it was still warm from the last running cycle. When the motor started for the running cycle the snake got the "run-around" until he used his head and "stopped the works."

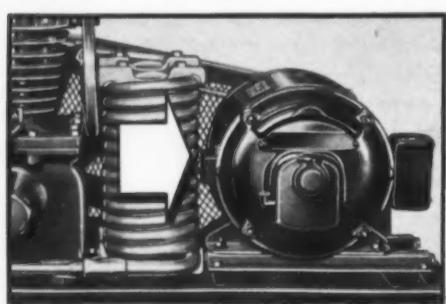
## A good BUSINESS INSURANCE Policy IS TO SAFEGUARD "GARDEN FRESHNESS"

Everyone's talking about frozen foods these days...farmer, storekeeper, housewife...for it's the finest way to preserve the garden freshness of vegetables for months to come. And, all along the way, Brunner condensing units help to safeguard the delicate flavor and freshness. Efficient and economical to operate, Brunner units give dependable refrigeration protection and provide uniformly correct temperatures so that foods are sure to stay wholesomely fresh. Brunner condensing units help to build and maintain customer goodwill, too. Designed and engineered for heavy duty work, they give years of performance at little operating cost. Check the features listed below and you'll quickly see why Brunner condensing units are the finest business insurance policy for safeguarding "garden freshness". Write Brunner Manufacturing Company, Utica, N. Y., U. S. A.

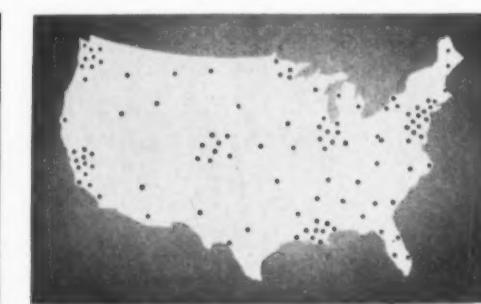
**1 NO VIBRATION**—Brunner units are designed and engineered by refrigeration experts. Smooth, quiet and efficient performance is built in. All moving parts are dynamically balanced for vibrationless, wear resistant service assuring long life and low operating cost.



**2 INTERCHANGEABLE**—The bronze bearings, silent eccentric drive, all-in-one valve assembly, cylinder heads, wear ever shaft, bellow seal assembly, and all other moving parts are precision machined. New parts are perfectly interchangeable with original units permitting important service savings.



**3 OVERLOAD PROTECTION**...Automatic reset integral overload protection (up to 1 h. p. incl.) prevents motor from burning out. Continuous refrigeration is assured, thus preventing spoilage.



**4 EXPERT FIELD** engineers are stationed in all parts of the United States. They are available for consultation in the solution of any refrigeration problem. Their practical experience will prove invaluable.

## BRUNNER MODEL A-38

Horizontal condensing unit specially designed for self-contained frosted-food cabinets...2 cylinder...air-cooled...1/3 h.p.

Brunner manufactures a complete line of condensing units from 1/4 to 25 tons of refrigeration. Each unit carries Underwriters' Laboratories approval and U. L. Seal.



GET THESE  
MONEY  
SAVING  
FACTS

• SEND for the  
"inside story".  
Brunner superi-  
ority illustrated  
point by point.

**BRUNNER**  
REFRIGERATION

## Scientific Lectures on Refrigeration Draw Crowds At Food Show

ROCHESTER, N. Y.—Selling refrigeration to the public, by means of "scientific" demonstrations, was the method used by the Rochester Gas & Electric Corp. to attract attention to the company's exhibit during the recent Food Show here. Using a bag of tricks well known to the refrigeration industry, but seldom employed during recent years, members of the utility commercial refrigeration staff gave demonstrations of how cold is produced in the mechanical refrigerator.

Interest of the public was reflected by the fact that from two to three hundred people crowded around the booth several times each day to see and hear all about refrigeration.

Using "Freon-12" for the demonstrations, the talk covered the boiling action of refrigerants, their ability to absorb heat, and an explanation of the refrigeration cycle. The quick freezing action of the common refrigerants was demonstrated with the use of flowers, fruits, and vegetables.

One of the most graphic and startling demonstrations employed the use of a fresh carnation. By immersing the flower in bubbling refrigerant, it was instantly frozen solid, and then shattered before the eyes of the spectators. The flying pieces of carnation petals left no doubt that the blossom had been thoroughly and completely frozen.

Another demonstration which fascinated spectators was pouring water on a beaker of bubbling refrigerant. Ice formed instantly in thousands of crystals, demonstrating the freezing power of the clear liquid.

The exhibit was flanked with household and commercial refrigerators, with one commercial unit in full operation. Approximately 65,000 people attended the show, and several thousand saw the utility company demonstration.

## Taylor Staging Contest For Ice Cream Dealers

BELOIT, Wis.—Retailers of ice cream who install a Taylor freezer during 1941 are eligible to compete in a \$1,500 contest based on gains in ice cream sales. Taylor Freezer is sponsoring the contest.

Factors to be considered in awarding of prizes are: saving in cost of making ice cream over previous price paid for commercial ice cream, increase in sales, and actual profit. A percentage basis of judging will be used to equalize volume differences between large and small retailers.

Prizes will be: first, \$500; second, \$250; third, \$100; fourth, 30 prizes of \$10; fifth, 70 prizes of \$5; making a total of 103 cash prizes.

Comparison will be made with a similar period of last year. The period for comparison starts on April 1. Those retailers who install their freezers between Jan. 1 and April 1, 1941, will have their sales and profit figures for the period from April 1 to Dec. 15 compared with similar period for 1940.

Those who install freezers after April 1, but no later than Sept. 15, will compare their records from date of installation to Dec. 15 with same period for last year.

Retailers who never sold ice cream before, or are just starting in business, will be judged according to the actual cost, sales, and profits.

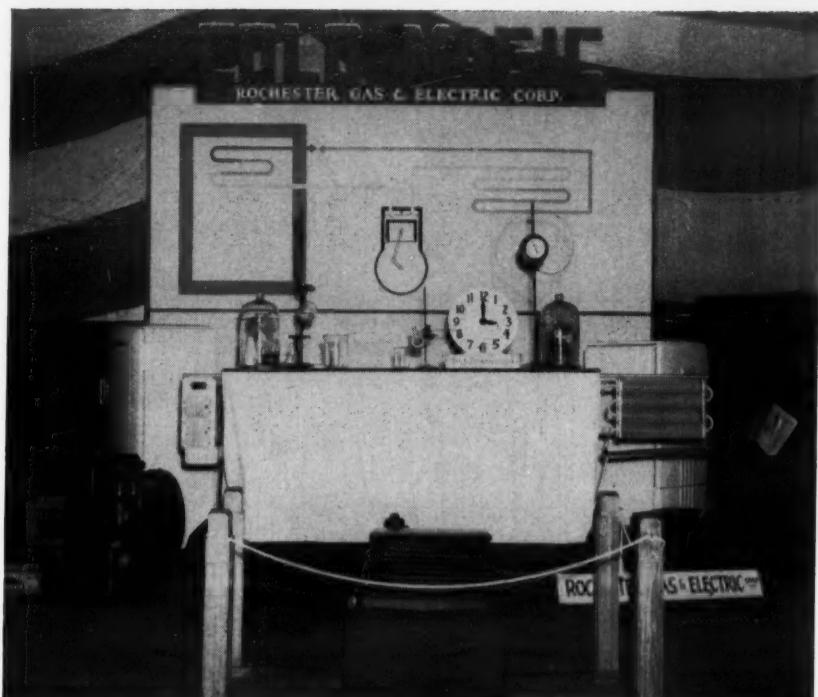
Employees of Taylor Freezer or their relatives, and distributors are not eligible to enter the contest.

Blanks needed to enter the contest will be supplied at time of installation of freezer, with blanks for final figures to be mailed to the retailer.

## Extension Course Offered In Thermodynamics

DETROIT—"Thermodynamics," a mechanical engineering course on the principles of energy transformation in refrigerating apparatus, steam and internal combustion engines, and air compressors is being offered by the University of Michigan extension service at Northern high school here.

Classes meet at 7 p.m. Wednesday, with Prof. R. Clay Porter of the College of Engineering as instructor. Usual tuition fee for the 16-week course is \$12.



THE "SCIENTIFIC" SIDE of refrigeration is emphasized in this display by Rochester Gas & Electric Co. at the recent Home Show in that city.

## Nebraska Store Doubles Fur Storage Space

LINCOLN, Neb.—Miller & Paine department store has completed installation of a new 47 x 46-foot double-deck fur storage vault believed to be the largest in Nebraska. Refrigeration is provided by a 7½-hp. condenser which was installed on the eighth floor in 1935 when air conditioning was installed in the store.

The unit since that time has been used for the old fur storage vault and for refrigeration purposes in the candy factory and bakery, also on the eighth floor. Refrigeration of the old vault has been discontinued, according to Gottlieb Schleicher, store engineer, and piping extended to serve the new vault, while other eighth floor refrigeration duties continue as before. However, he said, if the summer load proves to be too heavy, an auxiliary unit of around 2 hp. will be installed.

The new vault provides about double the space formerly available for storage. The store has made sound motion pictures of the new

vault along with other new improvements in the store, for promotional purposes.

## Counter Freezer License

### Bill Up In Oregon

SALEM, Ore.—A bill which would require payment of an annual licensing fee on all counter freezers in use in this state has been introduced at the current session of the Oregon assembly.

Known as House Bill No. 40, the measure provides that each place of business maintaining a counter freezer shall pay an annual license fee of \$7.50 to the state department of agriculture. Fiscal year ends on June 30, and half-year licenses would be available at a cost of \$3.75.

The bill defines "counter freezers" as any refrigerated counter device used for the freezing or the frosting of food products, such as ice cream, ices, sherbets, and malted milk, for retail purposes. No provisions limiting the capacity of the freezing equipment are included in the measure.

# HERE IS THE GREATEST Eyeful in THE INDUSTRY



why  
**FEDDERS**

## 1941 UNIT COOLERS

GIVE YOU PLENTY TO SHOUT ABOUT TO YOUR CUSTOMERS

**1 THEY HAVE THE "LOOKS" THAT SELLS... Buy Fedders**

Streamlined styling... handsome china-white and opalescent polar green cabinets embellished with chrome and scarlet... Fedders 1941 Unit Coolers blend in and add sales appeal to modern case and cooler design.

**2 THEY DO THE JOB... Buy Fedders**

Thanks to Fedders specially designed All-Copper Coils, they provide and maintain lifelong heat transfer efficiency... correct fan speeds for ideal humidity... diffusing type air baffles and louvres... complete drainage of condensate... Heat Exchangers for heavy duty loads.

**3 THEY ARE BUILT TO FIT... Buy Fedders**

The most complete range of models and capacities in the industry. 101 models assure correct refrigeration for every size Display Case, Reach-in Cabinet, Walk-in-Cooler, Bottle Beverage or other type of Cooler.

**4 THEY ARE EASY TO INSTALL AND SERVICE... Buy Fedders**

Convenient, integral mountings simplify installation on wall or ceiling. Adjustable, dual function Drain Trough on Fed-R-Luxe Models conforms to various shelf arrangements. Fan Grille easily opened for quick access for adjusting valve or oiling motor.

**5 THEY ASSURE YOU OF DELIVERIES... Buy Fedders**

Fedders big volume production, huge buying power and tremendous stocks of materials assure you of delivery. Anticipate your requirements... PLAY SAFE... STANDARDIZE and **BUY FEDDERS!**

**FEDDERS MANUFACTURING CO., BUFFALO, N. Y.**

Atlanta, Boston, Chicago, Cincinnati, Dallas, Detroit, Los Angeles, New York, Philadelphia, St. Louis, Hamilton, Ont.

## Fancy Settings For Suds

### Louisville Dealer Adapts Beer Cooling Installations To Fit Individual Tastes

LOUISVILLE, Ky.—The many different ways in which A. E. Stuckert of the Louisville Refrigeration Co. here has made draft beer cooling installations demonstrate the possibilities for dealers and installation contractors in this kind of an application if they will use some ingenuity in planning such installations, or will follow faithfully the ideas of the tavern owner.

In the "Top Hat" cafe in Louisville Mr. Stuckert did an unusual job with the resources with which he had to work.

Back of the bar was a good sized room with concrete walls. Mr. Stuckert insulated it with cork, and then inserted five barrel heads with taps through a stainless steel trimmed partition along the front of the storage room (see picture). The barrel heads were furnished by the various breweries who sold to the tavern keeper.

Directly above the barrel heads are glass doors like those of a reach-in refrigerator which opens onto shelves inside the storage room, on which bottled beer is stored.

A drainboard was built near the floor under the spigots which come out of the barrel head.

The storage room is cooled by a blower unit, in one of the back corners. Temperature control is by a thermostat in the warm air stream

to the blower, the thermostat cutting in at 26° and out at 32° F.

Reserve barrels of beer are thus cooled in the back part of the storage room and moved up to replenish those attached to the keg heads.

In addition to its unusual attractiveness, this installation has the added value of affording bar customers a direct look at the drawing technique of the tavern owner and his bartender.

On another installation where a considerable amount of beer was to be served in a hurry, Mr. Stuckert designed an "above the bar" draft arm section (see Fig. 2).

Constructed of stainless steel with corners finished in a moulding trim, the section has six beer taps and a water tap. Along the top is a refrigeration coil which assures the beer being kept cold right to the glass.

Beer is drawn directly from the half-barrels in the keg compartment under the bar. Connection is made by the tap rod to the draft arm by means of a flexible beer hose.

This flexible beer hose makes it possible for Mr. Stuckert to get a maximum of refrigeration coil surface into the keg compartment. Along the front of the compartment is a 10-row coil of  $\frac{1}{4}$ -inch steel tubing. Fixed to the top of the compartment at the front is a large

8-row finned coil of  $\frac{1}{4}$ -inch tubing with  $\frac{1}{4}$ -inch fin spacing.

So that the greatest possible refrigeration effect will be obtained, Mr. Stuckert has installed a small propeller type blower in the center section between the keg compartments, which pulls the air over and down around the kegs and then back again against the coils.

### Ice Cube Maker Will Make 40 Lbs. Per Day

BUFFALO—An automatic ice-cube-making refrigerator capable of producing 40 pounds of ice or about 300 cubes in 20 hours has been announced by Jewett Refrigerator Co., Inc.

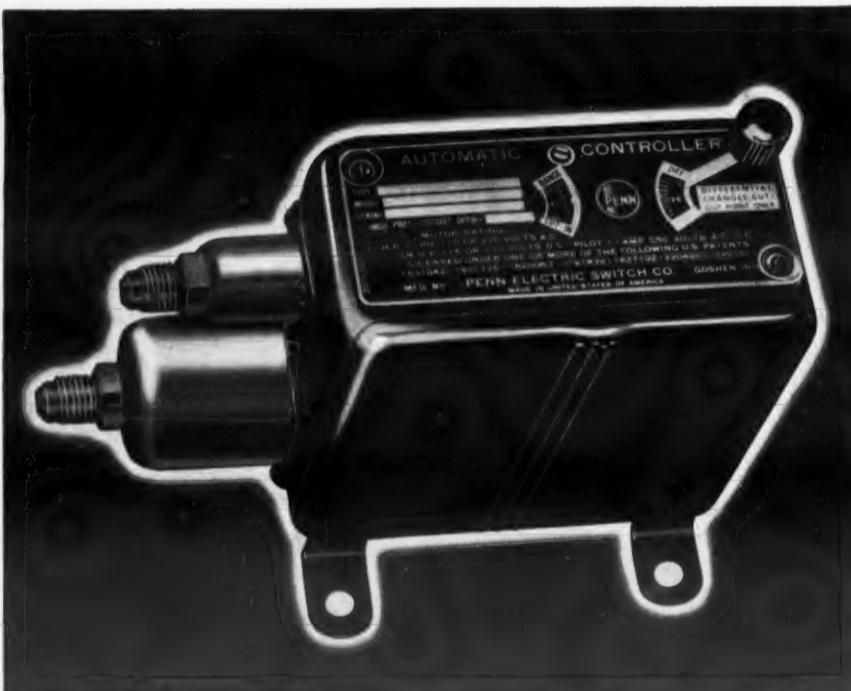
Powered by a  $\frac{1}{2}$ -hp. hermetically sealed condensing unit and supplied ready to plug into an electric outlet, this unit has a capacity of 21 2-pound ice trays of the quick release type. Each tray is divided into 14 cubes. A heavy stainless steel removable storage pan capable of holding one complete freezing is furnished.

A chest type unit, this new freezer measures 33 inches long, 22 inches wide, and 36 inches high. Temperature is maintained at 0° F. Price of the unit is \$165, f.o.b. Buffalo.

### Pacific Refrigeration Co. Gets Mission Dry Job

LOS ANGELES—Pacific Refrigeration Co. is installing a new \$23,000 refrigeration system in the plant of Mission Dry Corp. here.

## Choose controls to fit the job —Calibrated or Standard



*There is no such thing as the "best" control for all installations*

Experienced refrigeration engineers know this. Some installations should be made with fixed cut-in and cut-out settings . . . with controls that do not invite the user to change these settings.

On other types of installations, it may be necessary or desirable to change settings frequently, and with accuracy.

Penn offers controls for both classes of applications. Newest addition to the complete Penn line is the 1260 Series low side pressure or temperature controls and the 1261 Series dual pressure or dual temperature controls incorporating accurately calibrated scales. These new controls incorporate the same service-proved magnet contact structure as the 260 and 261 Series controls. Dimensions and mounting specifications are the same as 260 and 261 Series controls, making them quickly interchangeable on any unit.

Calibrated 1260 and 1261 Series con-

trols are available with calibrated scale on the cut-in point only, the differential only, or both. Also available with limited adjustment finger-tip knob, accurately calibrated, on either cut-in or differential adjuster, as specified.

If the installation is one that calls for controls which do not invite tampering with the settings, specify Penn 260 or 261 Series. But if quick, accurate adjustment and frequent changes in adjustment are required, specify Penn 1260 and 1261 Series. Write for information or contact the nearest Penn branch office, representative or distributor.

Penn Electric Switch Co., Goshen, Indiana. In Canada: Powerlite Devices, Ltd., Penn Electric Switch Division, Toronto, Ont. Export: 100 Varick St., New York City. Branches, representatives and distributors in principal cities.

*More information on what Penn Controls will do for you—One of a Series.*

**PENN**

**Penn-Built Controls for Many Applications**  
Thermostats, Bonnet Controls, Ductstats, Fire Protection Controls, Water Temperature Controls, Boiler Pressure Controls, Boiler Water Level Controls, Humidistats, Stack Switches, Stoker Timer Relays, Solenoid Gas Valves, General Purpose Relays, Solenoid Refrigerant and Water Valves, Refrigeration Pressure and Temperature Controls, Water Valves, Pump Controls, Air Compressor Controls, Air Volume Controls, Line Starters.

Illustrated above is a typical 260 Series control for temperature applications. Shown with Style 1 clamp-on or liquid immersion bulb. Available with cross-ambient bulb for liquid immersion and also with fin type bulb (Style 18) for close differential air temperature control. Available in 1260 Series with calibrated range scale.

Illustrated at left is 265 Series temperature control, equipped with "cold control" knob and manual "off-automatic" switch. An ideal control for ice cream cabinet and beverage cooler applications. Also available without external adjusters as well as with calibrated adjustment scales. Also supplied with pressure bellows for all pressure applications within its rating to  $\frac{1}{2}$  HP max.

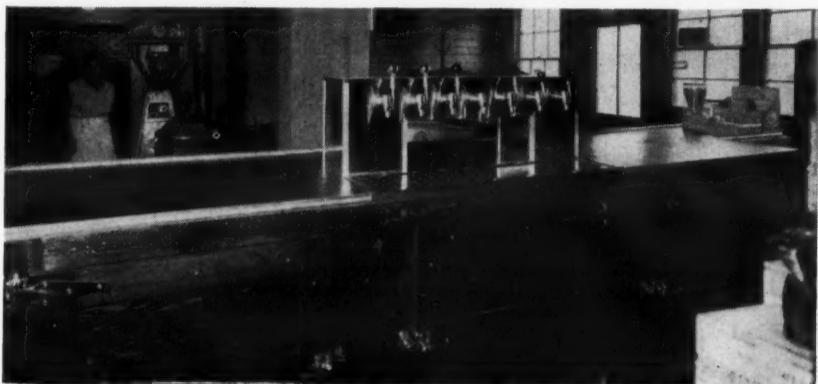
At right is the Penn 1713 Series dual pressure or polyphase control for single or polyphase applications to 2 HP max. Available with or without trip-free bimetal motor overload protection. Also available without calibrated scales. Supplied with convenient mounting bracket for compressor base mounting. Write for information.



### Some Different Ideas In Draft Beer Jobs



These keg heads in the attractive back-of-the-bar setting lead directly into a storage room cooled by a blower unit.



The above-the-bar draft arm section on this particular job has its own cooling coil.

### New Brunner Catalog Offers Load Selection Data For All Types of Applications

UTICA, N. Y.—Brunner Mfg. Co., in its new catalog which will be ready for distribution about March 15, is providing those who use the catalog with a distinctive service in the form of capacity ratings and all of the necessary tables for determining the load and selection of the proper unit.

The catalog, of course, also gives data and specifications on the complete line of Brunner condensing units.

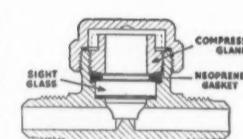
There are examples showing just how to apply the data in every major classification of use so that the sales-

man, service engineer, or architect can work out the solution to any of their problems.

There is another innovation in the catalog designed to prove particularly helpful to architects and service engineers. This consists of dimensional drawings showing all dimensions of the various units, as well as the dimensions of simple compressors. These drawings enable the architect to determine the exact space requirement of each unit, or the service man to determine the measurements where it is a matter of unit replacement.

## LIQUID INDICATORS that Don't Leak!

• The improved design of our Liquid Indicators is effective assurance against refrigerant leakage around the sight glass. The sight glass is sealed into the forged brass body by a heavy Neoprene gasket which, in turn, is compressed by a packing gland, which forces the pliable gasket along the sides of the glass and produces a perfect seal.



Mueller Brass Co. Liquid Indicators are made in a complete range of styles and sizes. The seal cap and open port type may be installed where light conditions are favorable. Where the light is poor, we recommend the use of our double port liquid indicators illustrated here. By flashing a light through one port, the exact condition of the refrigerant may be determined through the other port.

The new design of the compression gland permits the use of standard wrenches for tightening.

Note: All models of Mueller Brass Co. filters and line strainers may be obtained with female flare connections on one end. This makes it possible to assemble any desired filter to a liquid indicator for installation in the liquid line of the system.



Your jobber prefers standard trade marked products. He can rely upon them—so can you.

**MUELLER BRASS CO.**  
PORT HURON, MICHIGAN

## Air Conditioning Aids 'Country Doctor' In Residence-Clinic

DALLAS, Tex.—What refrigeration and air conditioning can be made to perform in bringing to the country doctor every facility which heretofore had been considered beyond his reach is demonstrated in the small but complete clinic now being operated just outside the city limits of Dallas by Dr. William W. Fuller, Jr.

Zoning restrictions require all buildings in this area to be residences, so Dr. Fuller lives in the clinic, thus making an interesting study in the application of air conditioning and refrigeration to a combination residential-commercial system.

The clinic-residence is a small one-story building measuring 47 feet by 27 feet, exclusive of the kitchen and garage. In this small area are a reception room, two examination rooms, an office, X-ray room, photographic darkroom and laboratory, laboratory for a dentist associate, office space for the dentist, bedroom, and bath. A corner of one of the examining rooms has complete facilities for babies.

Air conditioning equipment installed by the Dallas Air Conditioning Co., Inc. consists of a York 165,000 B.t.u. oil-fired winter unit placed in the main building. Refrigeration for summer cooling is supplied by a 3-hp., 3½-ton York unit with a redwood water cooling tower. Conditioning units are housed in a small shed attached to a garage. A separate window type cooler is installed in the kitchen which is not served by the central system.

Fin type coils are employed in the central system, and automatic controls maintain proper temperatures in summer and winter. The conditioning system is so designed that



Cooling tower which stands in back of garage. Compressor units for the central system are in a small shed between the tower and garage.

expansion can be handled simply by the addition of more refrigerating equipment.

In the small kitchen a Philco household refrigerator does double duty. In addition to preserving food, the refrigerator provides safe storage of serums, vaccines, biologicals, etc., always a serious problem for the rural doctor.

Before designing his clinic, Dr. Fuller made a study of other clinics and concluded that too much space is wasted in the usual clinic through excessive use of halls. Entering the clinic building from the kitchen is a hall which enters a room serving as Dr. Fuller's bedroom. The hall also serves as laboratory and X-ray darkroom. Cooling, of course, is supplied to this room from the central system.

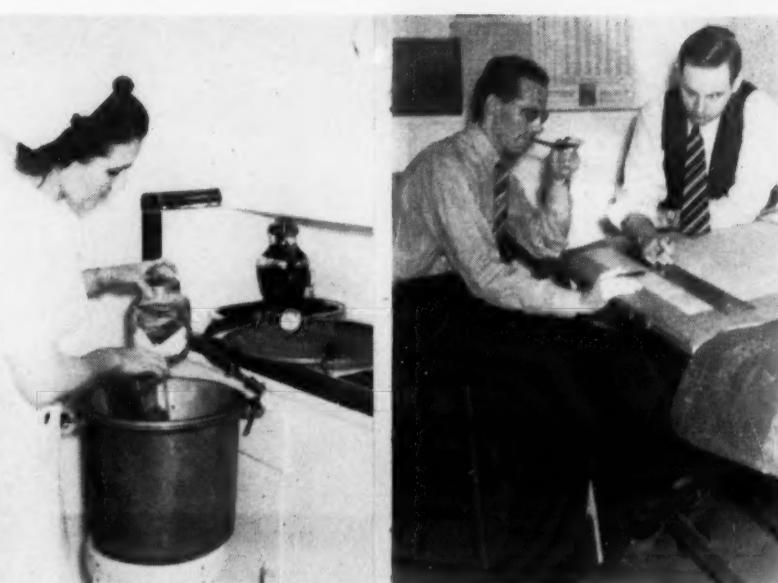
The two examination rooms, measuring 7 by 10 feet each, are featured by an ingenious space-saving method for handling instruments. Separating wall between the two rooms was built into a cabinet, opening into either room. Likewise drawers in the lower section may be opened from either side.

In one corner of an examination room is the "baby corner," compact and inexpensive but important in the building up of practice. Air conditioning makes the babies more comfortable and consequently aids in increasing practice.

To make possible the building of his clinic, Dr. Fuller has been forced to keep costs of all equipment to a minimum. As an example, the table in his X-ray room was built by a local carpenter at a cost of only \$10, while a special table for this purpose would have cost \$100, Dr. Fuller said.

In the darkroom, conduits have been placed in the walls to permit, when required, use of 220-volt current instead of the present 110 volt.

## Engineers Serve Medical Science



(Left) Ordinary steam pressure cooker serves as sterilizer for Dr. Fuller's clinic. (Right) F. L. McFadden and S. H. Green, Dallas Air Conditioning Co. engineers, study details of clinic installation in blueprints.

## Negro 'Burial Insurance' Organization Installs 50-Ton Conditioning System

CHICAGO—Air conditioning has been installed in the home of the Metropolitan Funeral System Association here, an insurance organization serving Chicago's large colored population. A 50-ton system, powered by a Trane turbo-vacuum compressor, was included in the building's equipment as an aid to "economical and efficient line production of insurance under the most favorable conditions possible for workers within the building."

On the first floor of the 165 by 75-ft. structure are the general offices and rooms for sales agents. On the second floor are recreation rooms, a cocktail lounge, and a ballroom with a large dance floor.

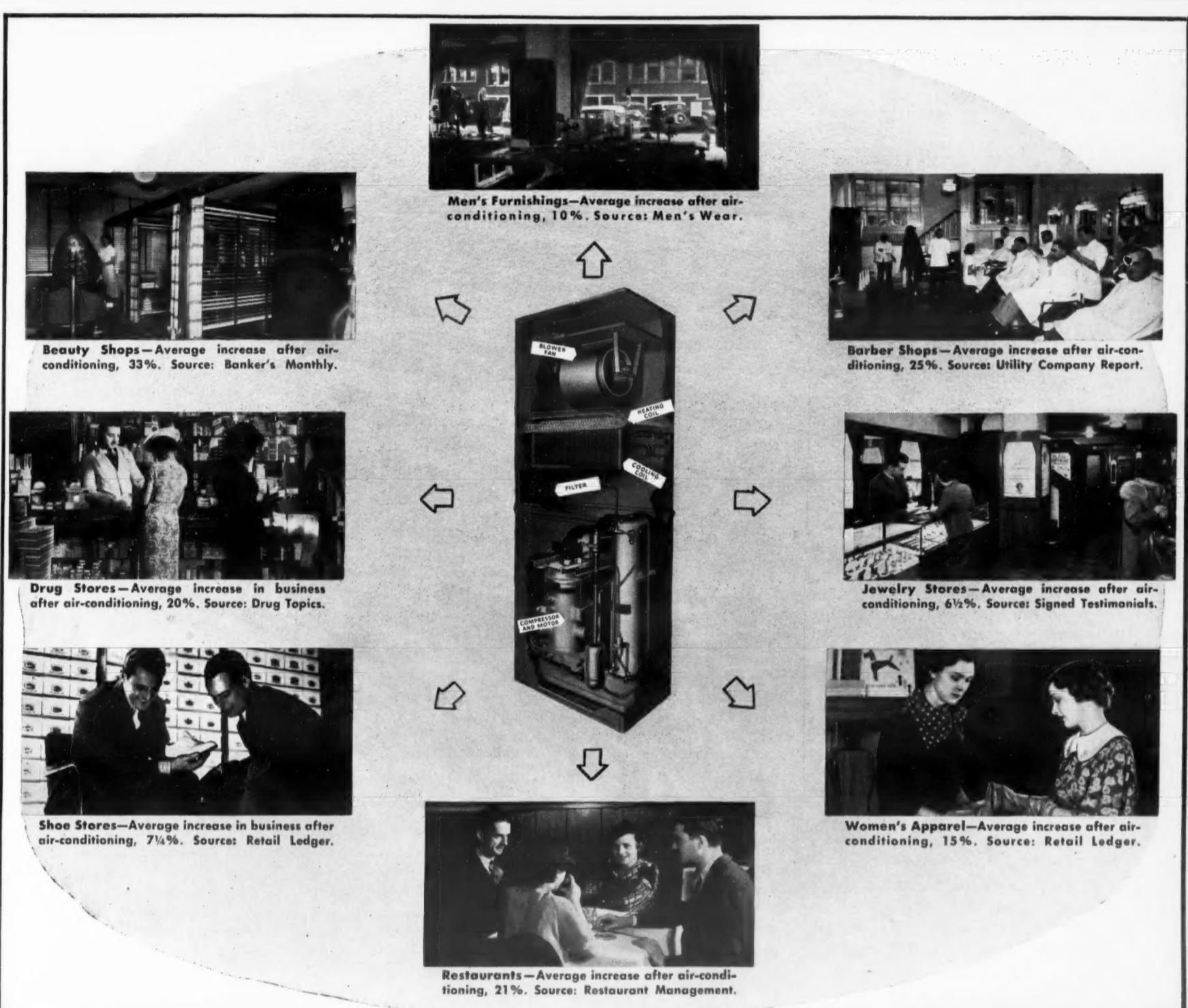
Heating is supplied by a split system, using conditioned air and two pipe forced hot water lines to convectors in the private offices, lobby, and vestibule. Heat for the general

offices and agents' quarters is supplied by booster coils.

Installed in the basement a Trane fan-coil unit having 11,500 c.f.m. capacity provides ventilation and tempered air for the entire first floor. A vertical unit on the second floor handling 26,000 c.f.m. takes care of the recreation rooms, ballroom, and cocktail lounge on that floor. The latter has a 15-hp. variable speed motor.

Each fan unit contains a two-row heating coil and a four-row water cooling coil. The piping has been arranged so that all six rows may be used for cooling if desired.

Water chilled to 42° F. by the compressor is supplied to the cooling coils at the rate of 100 g.p.m. The compressor has a hot-gas bypass to handle varying load conditions. The maximum load occurs when dances are held.



## Every Business in Town is Your Prospect When You Sell Airtemp Cooling Equipment

### The Exclusive, Hermetically-Sealed, Radial Compressor Means Lowest Cost to Customers . . .

In another month the market for cooling equipment will open up—businessmen will begin to think of summer comfort for their customers. It's almost literally true that every business in your town is a prospect

for Airtemp cooling units. The market is tremendous. When you sell Airtemp cooling units, you can undersell competition and yet deliver time-tested units which are giving satisfactory service in every section of the country. Airtemp makes the *only* hermetically-sealed, radial compressor unit on the market. It requires no more service than a sealed domestic refrigerator, operates at lowest cost. Write today for Airtemp's introductory offer to dealers.

**CHRYSLER** **AIRTEMP**  
AIRTEMP DIVISION OF CHRYSLER CORPORATION, DAYTON, OHIO

## AIR CONDITIONING & REFRIGERATION NEWS

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F. M. COCKRELL, Founder

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## A Big Promotion Job Needs Doing At Once

PRIORITIES, at this writing, have the refrigeration industry in a fever. Not only are deliveries of parts and supplies far behind, but some of the biggest manufacturers are beginning to get worried about what, if anything, they'll be able to build in the future.

There will be electric refrigerators for sale in 1942, of course, just as automobiles will be coming off the production line. The question, of course, is: What kind? Of what made?

Unless something is done to convince the powers-that-be that refrigeration is necessary to defense because it defends and protects the health of the nation, and because it helps conserve and preserve the food supply, the industry may find it increasingly difficult to get aluminum, nickel, copper, brass, tin, and certain alloy steels.

The industry does have a good case. It's probably a better case than any other "non-defense" industry has to present. The point is: *It must be presented!* That's where the industry's next big promotion job must be done.

Of course every industry that needs or uses metals of any kind is now down at Washington crying that it is an "essential" industry.

At OPM headquarters, for instance, they cite the cases of the corset industry and the horse-racing business. Corset manufacturers claim that if they don't get aluminum for stays, the health of millions of women, including potential mothers, will be impaired.

And the racing crowd insist that if aluminum isn't available for horse-shoes, all the nation's fine thoroughbreds will have to be shot, and a tremendous business will have to fold—with resultant gigantic losses in taxes and health-giving entertainment!

Such preposterous claims only serve to highlight the *valid* claims of the refrigeration industry for preference, by means of the contrast they afford.

However, the point is that the very making of such claims by

obviously non-essential industries serves to make the Poo-Bahs of Priorities callous to the plea of an industry which *really* contributes to a genuine need of the nation.

To break through the boredom and callousness (is there such a word?) thus evoked, the refrigeration industry needs to present its case in the same impressive fashion, and with the same technique of restrained power, that it has used to sell the general public.

Here is a cooperative job that needs doing *now*. This is no time for pussyfooting or shush-shushing. Democracy today not only does not understand the pussyfooting techniques of yesteryear—it is resentful and suspicious of them. It's propaganda and lobbying, telegrams and public statements, broad-sweep advertising that get results today.

## BOOK REVIEW

"Men and Volts," by John Winthrop Hammond, published by J. B. Lippincott Co., New York. Price, \$2.50. 436 pages, including index. Review by J. S. Wilford.

THE achievement of two generations in developing the usefulness of electricity from nil to the point that this is known as the electrical age might seem beyond narrative. Such a history would include court trials, such as that testing Edison's incandescent lamp patent, which filled volumes for record. The task assumes, in its field, some of the proportions of the achievement it would extol.

But the narrative has been written. It is "Men and Volts," by John Winthrop Hammond, published by J. B. Lippincott Co. The author finished his life in the work, but his years of effort were well spent, and a little organization has made this big story available.

Ostensibly "The Story of General Electric," it logically includes the broad, thrilling drama of invention, which began with attempts to banish darkness with a "hot hairpin in a glass bottle."

Hammond tells of the practical dreamers who dared to experiment with a force, the exact nature of which is still unknown. The mastery and development of that force should appeal to the reader in even greater measure than ever before.

Then there is the lesser known but equally dramatic story of making the developments available for a public that was sure that electricity was only a fad. Its characters include a small group of shoe manufacturers, a few far-sighted financiers, and a handful of professional men who had faith in the inventors.

These hard-living, hard-thinking men—some bulldogs for detail, some dashing crusaders, all of them creative and imaginative of necessity in this field where none had gone before—work and battle for their ideas. They turned their backs on the hooters just long enough to organize, and they turned again to face them and to sell them.

Inventors Edison, Brush, Thomson, Sprague, Steinmetz, and a host of others are portrayed to confound the reader with their genius and courage. Lessers lights, only in comparison, are extolled for the manner in which they backed headwork with practical application in the field.

An Edison helper, young Arthur R. Bush, engineer and business man, was assigned to aiding isolated generating stations in getting started. At one town, he saved the day for electricity, much as a young Hollander had saved his people with his thumb.

Bush was alone at a generating station. "The clutch mechanism connecting the jack shaft to the dynamo driving pulley was out of order and the clutch was slipping. If the dynamo stopped, all the electric lights in town would go out.

"Bush knew that it would take two men to repair the mechanism without stopping the engine—and he was alone. It was a case of leaping into the gap as best he could. He grasped the clutch

**They'll Do It Every Time . . . . .** By Jimmie Hatlo



lever with both hands and held on . . . to keep the clutch in place by main force . . . muscles ached but nobody came . . . the tardy attendant finally arrived. And Bush, faint with exhaustion, discovered that he had held the clutch for an hour and a half." Flesh-and-blood men walk the pages of "Men and Volts."

Examples of "what it took" become magnified as the inventive mind reaches further into the mystery. A projected street car system, 12 miles long, was to be equipped with 40 cars and built from scratch. A suitable motor, gearing, and system of power transmission had to be developed, track and wire to be laid, the job to be done in 90 days.

Frank J. Sprague undertook the task, only to be confined with typhoid fever for nine weeks. But he had started, and his help carried on, so that once out of bed he finished it. Most orders called for a Superman, but most of the work was done by real men. They just worked hard—followed Edison's recipe for genius: ninety-nine per cent perspiration.

But back to the shoemakers and bankers. Their parallel story is clearly traced through a maze of patent fights, of opposing personalities, of the battle of direct vs. alternating current, and myriad other problems. Stalemates seemed inevitable. But the desire for continued advancement and service to the public would not allow it.

Cooperation, to end wasteful battling and to further healthy competition, brought about the formation of General Electric. The company's roots are revealed in the idealistic work of Edison, Thomson, Steinmetz, and the administrative genius, Charles E. Coffin.

Hammond shows Coffin's admirable leadership through the Panic of '93, follows the development of G-E research and production departments, and then lightly sketches the accomplishments of the last two decades. Readers will look forward to another book giving in greater detail the story of the last 20 years. We hope that it is part of the promise with which "Men and Volts" ends—

"What lies ahead none can know, but if the history of the past can be taken as a guide, the future holds in store possibilities as vast and as promising as any that have gone before."

## LETTERS

### STANDARDS

National Refrigeration Supply Jobbers Association  
145 High St., Boston, Mass.

Dear George:

Knowing you to be vitally interested in the stabilization and growth of the air conditioning and refrigeration industries, I am going to try to interest you in a "crusade"—namely—STANDARDS.

I recently wrote to L. L. Lewis, president of the A.S.R.E. commanding that association on the accomplishments of their Standards Committee, pointing out that the N.R.S.J.A. at its January, 1940 meeting adopted a

resolution calling for more work in this direction with the result that R.E.M.A. appointed a committee to work on the subject.

By standards I refer to a common basis of rating the capacity of the many products we sell. All types of blower and gravity coils, expansion valves, solenoid valves, heat exchangers, dryers, filters, etc.

The great majority of independent service men and service companies select equipment from a manufacturers catalog using the printed capacity as a basis for selection. This has resulted in innumerable poor installations, giving the trade in general a bad reputation. The remedy is simple. Let ratings come out of the engineering department instead of the sales department. Let all manufacturers subscribe to a sound basis for determining capacities, indicating on their sales literature that ratings are based on—say A.S.R.E. Standards. Material will then be sold on the basis of workmanship, delivery, honest price differential, etc., and not on the basis of a misrepresented over-rated capacity.

Here we are trying to sell a product to a customer that we are told weighs "so much." We can't get out the scales and weigh it before his eyes. The element of doubt is ever present.

All other industries have developed from this childish phase and have produced basic standards through which they have reached a healthy maturity. The only obstacles are competitive in nature—in other words selfish—regardless of the over-all benefits that could accrue to the industry.

This crusade needs publicity and lots of it. Let's all get out in the middle of the floor, empty our pockets so the other boys can see what we have, and start from scratch. There is small satisfaction in winning a handicap race.

CHESTER E. BORDEN

### LONDON

106a Lee Road  
Blackheath, London, S.E.3

Dear Mr. Taubeneck:

I just received the NEWS of Oct. 9 in which I find published what I wrote to you. I wish to thank you sincerely for such help and am glad to inform you that I have been released now and started work again.

M. HIRSCH  
Consulting Engineer

### MISTAKE

13 Beauport Ave., Gloucester, Mass.

Sirs:

Please find check enclosed to cover subscription to the NEWS, I have missed it greatly during the past year and consider it a mistake in letting my subscription lapse.

EDWARD C. HOYT

### NELA, NEMA, REMA

McCall Refrigerator Corp.  
Hudson, N. Y.

Editor:

Can you furnish us with the addresses of NELA, NEMA, and REMA electric associations.

We have some information we wish to obtain from each of these organizations.

A. R. HOWGATE,  
Purchasing Agent

Answer: There is no longer any "Nela." This was the old National Electric Light Association, which has been superseded by the Edison Electric Institute, 420 Lexington Ave., New York City.

Address the Refrigeration Division of the National Electrical Manufacturers Association (Nema) at 155 E. 44th St., New York City.

Headquarters of the Refrigeration Equipment Manufacturers Association (Rema) is at 111 W. Washington St., Chicago.

## Ice Shows a New Thrill For the South - And a Revived Refrigeration Market



This ice rink was built in a galvanized "pan" over a dance floor surface in the swank Century room of the Adolphus hotel in Dallas, Texas by the Dallas Air Conditioning Co.

DALLAS, Tex.—An indoor ice skating rink has been installed in the Century room of the Adolphus hotel here by Dallas Air Conditioning Co., York distributor. According to M. L. Brown, vice president of the organization, the rink is used for extended periods when ice shows are in progress, and may be kept frozen for as long as 12 weeks at one time. The frozen surface was built over the space normally used for dancing.

The rink was formed in a galvanized steel pan measuring approximately 20 ft. wide by 24 ft. long by 8 inches deep. The pan was set on 2 inches of Armstrong corkboard laid on red resin paper on the maple floor.

### STEEL PIPE COILS

Wooden sleepers were placed in the bottom of the pan and 2,000 ft. of 1 1/4-inch black steel pipe coils were arranged in the pan on approximately 3-inch centers. Headers at the ends of the coils were arranged so that the cooling medium could be circulated through all pipes and no dead spots occur.

After the piping was in place, clean sharp sand was used to fill up the space underneath the coils. This

sand was also brought up around the piping so that approximately one-half of the 1 1/4-inch pipe was allowed to project. Ice was then formed over these coils and built up to a thickness of about 2 or 3 inches above the coils to form a skating surface.

### BRINE FROM 15TH FLOOR

Calcium brine was used for the refrigerating medium. This was stored in a brine tank located on the fifteenth floor of the hotel, and circulated to and from the ice rink coils with a 3-hp. brine circulating pump.

The brine is cooled with a 4 x 4 York self-contained ammonia refrigerating unit, using a 10-hp. alternating current motor for the driving power. Coils in the brine tank consisted of special York full flooded coils with suction trap fed by York patented float control.

The refrigerating machine was permitted to operate on the brine tank automatically, and the brine temperature was maintained at approximately 10° to 12° F. thermostatically, at all times.

## \$150,000 Ice Sports Plant Planned For Dallas

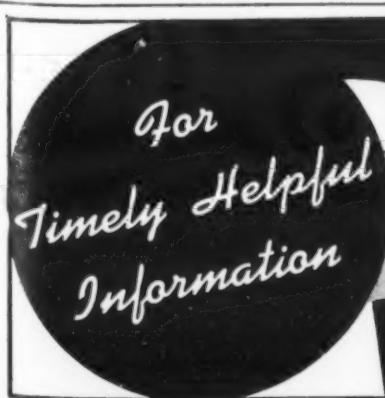
DALLAS, Tex.—Final plans, including decisions relative to types of ice machinery to be installed, were to be completed at a meeting of engineers, architects, and promoters for the proposed ice skating rink to be built here by Ice Sports, Inc., a \$150,000 organization headed by Clarence E. Linz, Dallas financier.

The rink will be placed in a remodeled area of the Texas State Fair live stock arena here, and will be 100 by 200 feet in size. Seating capacity of the rink auditorium will be 7,500 persons. The rink will be one of the largest and most modern in the South, and first in Texas. It will be provided with a cafe, soft drink bar, and lounge.

According to plans to date, promoters of the venture will endeavor to have Dallas entered as one of the hockey loops, and organize a team representative of the city. It also is planned to bring such stars of the ice as Sonja Henie, Maribel Vinson, and others here to perform.

### Rogers Gets Prison Contract

LOS ANGELES—John Rogers & Son, 3515 W. Washington Blvd., has been awarded a \$5,225 contract for refrigeration equipment for installation in the new Southern California Prison, at Chino, Calif.



## 'Charity' Cooler In College Dorm Keeps Food For Needy

WACO, Tex.—Installation of a "charity" walk-in refrigerator for the storage of left over food was part of the modernization program completed in Baylor University's Catherine Alexander Hall here recently. Instead of being thrown away, all food left over from meals served in the dormitory dining room is turned over to the Salvation Army for distribution to the needy.

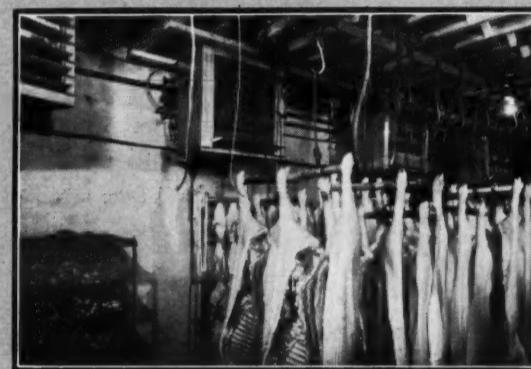
The installation was made by Air-Con Engineering Co. of Waco of which A. F. Avery is manager and Cliff Terrell, chief engineer.

Cooling for the new walk-in box is provided by cold water coils which maintain a temperature of 36° F. Water serving these coils is chilled by a 10-hp. ammonia compressor which formerly was used only for the purpose of cooling drinking water. The machine now serves in both capacities.

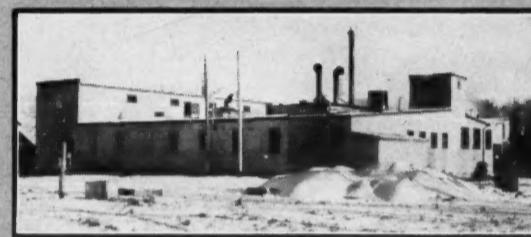
Modernization of kitchen facilities included the installation of a low temperature refrigerator measuring 8 by 10 by 9 ft. high. Insulated with 4 inches of cork, this refrigerator is lined with tile, and is kept at 20° F. by a Carrier 1-hp. compressor.

A second 1-hp. compressor is used to serve two Seeger reach-in refrigerators in the dormitory kitchen.

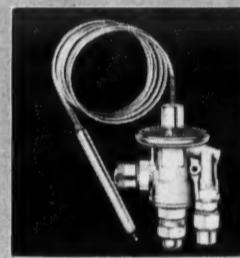
# DEPENDABLE VALVES Offer RESPONSIBILITY in MEAT PROTECTION



One room at Brandon Packers, Ltd., showing Unit cooler with No. 205 A-P Thermostatic Expansion Valve.



New Refrigeration Plant of "The Brandon Packers, Limited," Brandon, Manitoba, Canada.



A-P Model 205 Thermostatic Expansion Valves. 16 of these Model 205 Valves and 2 Model 210 Thermostatic Expansion Valves were used for DEPENDABLE Refrigerant Control at Brandon.

★ The new Refrigeration Plant of Brandon Packers Limited Refrigeration plant uses . . .

"A total of sixteen A-P Valves, and all doing a fine job"—according to the Winnipeg Refrigerator Parts Company, Winnipeg, Canada, who sold the Valves to Marshall Wells Company for installation by Ace Service Station at Brandon, Canada.

★ Like the majority of leading Jobbers the world over, Winnipeg Refrigerator Parts Company have good reason for recommending and selling A-P DEPENDABLE Valves. A letter recently from Mr. James Gibson, Manager, outlined some of these reasons—

★ "It is approximately four years since we began stocking A-P Products, and to say we are satisfied in every way with them is putting it rather mildly. . . . We get further satisfaction from passing these same products over the counter to our customers, knowing that they are assured of DEPENDABLE operation with them."

★ This is a reputation you can use to profit—the A-P reputation for DEPENDABILITY and "Responsible" Refrigerant Control. Try it on your next job.

## AUTOMATIC PRODUCTS COMPANY

2450 NORTH THIRTY—SECOND STREET  
MILWAUKEE

WISCONSIN

Export Department

100 Varick Street, New York City

## 'Continuous Shelf-Line' Pre-Cooler Supplies Beverages For New Orleans Bowlers

NEW ORLEANS—Bowlers who crowd one of the South's newest kegling spots—O'Shaughnessy's Service, Inc., on the Airline Highway between Baton Rouge and New Orleans—can drink their beer and soft drinks with zest because of an unusual pre-cooler room built by Wands, Inc., Frigidaire commercial dealership here.

With two batteries of bowling alleys accommodating 24 teams, the spot pulls a record crowd a few miles out of New Orleans, and consequently has a heavy demand for beer and carbonated drinks—amounting to 75 cases on the average evening, 125 cases on Sundays. Formerly, beverages were cooled in a standard beverage cooler behind the bar, which held only four cases at a time; resulting in the loss of much goodwill through the fact that most

bottles scarcely had time to get wet before they were sold.

Wands solved the problem by the installation of a compact, efficient pre-cooling room which takes up little space, yet enables the O'Shaughnessy bartenders to provide plenty of properly chilled soft drinks or beer without strain.

An 8 x 10-ft. room was chosen for the pre-cooler, insulated with rock wool, and set midway between the two bowling-alley sections, so that it can be reached from either end. It is cooled by one evaporator connected to a 2-hp. Frigidaire compressor, the latter hidden away under a nearby counter. The unit is controlled by a low-pressure cut-out, and keeps temperatures down to around 30° F. in continuous use over a 9-hour period daily.

Over 300 cases of beer or soft

drinks can be accommodated through a novel arrangement which almost doubles the effectiveness of the cooling system.

This is a series of slanting shelves built around the walls of the pre-cooler, with the cooling coils interlaced between its supports, so that every bottle in the cooling room is within a few inches of the coil. As case bottles come in, they are removed and stacked around the shelving, which thus accommodates the contents of 300 cases in the space ordinarily required for 100.

The coil is 90 feet longer than the standard design, and brings the bottled goods stored on the shelves down to the correct temperature in about two hours.

### G-E Dealer In New Home

JEFFERSON CITY, Mo.—Gene Schneider Refrigeration Co. here has opened a new building at 620 E. High St. and will retail General Electric appliances. Gene Schneider is manager of the company.



For information about nearest source of supply, write to  
THE R. & H. CHEMICALS DEPARTMENT  
E. I. DU PONT DE NEMOURS & COMPANY (INC.)  
Wilmington, Delaware  
or National Ammonia Division  
Frankford P. O., Philadelphia, Pa.

Please send me the current issue of "ARTIC" Service News and put my name on the mailing list to receive future issues.

Name.....

Company..... Position.....

Address..... City..... State.....

## If a Refrigerator Requires Good Controls, How About a Dealer?

By Arthur Roberts

Controls are as essential to business as to refrigeration and air conditioning, yet, many dealers operate without one important business control—the budget or profit-prophet.

To make satisfactory profits, the dealer must keep overhead at a safe ratio to sales. This requires profit-planning. After the money is spent, it is too late to effect savings, hence, a budget is essential to profitable results.

Many years' experience on dealer accounts supplemented by research on the subject shows that less than 10% of the dealers use budgets, one reason why a number of dealers in this field have "overhead-aches."

### BUSINESS GOES AHEAD

Budgetary control, another form of estimating, keeps business on the whole, going forward. No business stands still. It forges ahead or back-slides. Certain years may show limited profits but, over the years, the trend of a successful enterprise, large or small, is upward.

Unless the dealer makes a practice of budgeting business operations, he cannot assure himself profits or the consistent growth necessary to sound organization.

A budget is a pre-determined compilation of estimated figures covering operations for a forth-

coming period. It may begin with any month, cover any length of time. Periods may run from three to 12 months. Dealers in this field will find six or 12-month coverage most applicable. Every business can be "budgetized."

To arrive at reasonable budgetary estimates, use judgment and draw upon past experience. A budget should fit the business and mirror its activities for a forthcoming period as accurately as possible.

### A SAMPLE BUDGET

Let's prepare a budget for "Edgar Simpson, dealer in refrigeration and air conditioning," covering 1941. We give the fundamentals of budgetary preparation in simple outline so that it can be easily understood and utilized by all, regardless of the size of the establishment.

Budget preparation operates in reverse. First, we consider expenses for the past three years. It has been found that overhead averages up about the same from year to year in this field so that by taking the average for the past three years, we get a safe figure to consider for a forthcoming year.

The Simpson books show that the overhead for the past three years averaged \$18,000. Sales for the same period averaged \$56,000 per

year. Gross margins averaged \$16,800, or 30% of sales.

Right here is one advantage of studying past performance for the purpose of preparing a budget. Simpson's average yearly gross margin was \$1,200 less than he needed to meet his \$18,000 overhead expenses. So he had been losing \$1,200 yearly, or about 2% of average sales. This loss indicates that to get volume, Simpson has been cutting prices too drastically, a chronic condition in many retail fields, and one which a budget will help correct.

Simpson's weakness is insufficient margin. The 30% gross margin fell 2% short of covering expenses so that Simpson could at least break even.

### 35% MARGIN

To correct this deficiency we set up this 1941 budget on the basis of a 35% instead of a 30% gross margin. Next, we budget net profit for 1941. An analysis of the figures in this field shows that 5% is a conservative estimate, and budgets must be conservative. Of course, Simpson receives a salary plus the estimated net profit. The budget build-up now stands:

Estimated gross margin or gross profit ..... 35%  
Estimated net profit ..... 5%  
Average yearly expense—\$18,000 ..... 30%  
If \$18,000 is 30%, 1% is  $\frac{1}{30}$  of \$18,000, or \$600, and 100% is 100 times \$600, or \$6,000. This \$6,000 is the estimated sales volume for 1941, which will cover Simpson's overhead and give him 5% net profit.

Next, we prepare Simpson's master budget as follows:

### 1941 Budget of Edgar Simpson, Dealer

Month	SALES		EXPENSES		MARGIN		NET PROFIT	
	Average Past 3 Yrs.	% of Average	Esti. 1941	Actual 1941	Esti. 1941	Actual 1941	%— 1941	%— 1941
January	\$ 2,000	3.5	\$ 2,100	...	\$ 1,100	...	35%	...
February	1,800	3.2	1,920	...	1,100	...	5%	...
March	2,800	5.0	3,000	...	1,300	...	...	...
April	5,300	9.2	5,520	...	1,400	...	...	...
May	5,200	10.6	5,700	...	1,500	...	...	...
June	6,000	10.6	6,360	...	1,600	...	...	...
July	5,600	10.0	6,000	...	1,700	...	...	...
August	6,400	11.4	6,840	...	1,700	...	...	...
September	6,500	11.5	6,900	...	1,600	...	...	...
October	7,200	13.0	7,800	...	2,000	...	...	...
November	3,400	6.1	3,660	...	1,600	...	...	...
December	3,800	7.0	4,200	...	1,400	...	5%	...
<b>Total</b>	<b>\$56,000</b>	<b>100.0</b>	<b>\$60,000</b>	...	<b>\$18,000</b>	...	<b>35%</b>	...

Edgar Simpson's sales for the past three years averaged \$56,000. January sales for the same three years averaged \$2,000 so the monthly average percentage for January sales is 3.5 and Mr. Simpson may expect this percentage in 1941. Other monthly sales are figured in the same way to get monthly percentages to yearly sales. In arriving at monthly estimates for 1941, we multiply the planned sales for the year—\$60,000—by the monthly percentage computed from monthly sales averages in the past.

For example, to get budgeted sales for June, 1941, multiply \$60,000 by 10.6, which gives \$6,360. Do likewise for each month to build up the sales column, "Estimated 1941." Pro-rate estimated monthly ex-

penses according to the averages for the past three years. Compare monthly with actual expenses. The margin column will show 35% for each month under "Estimated %—1941." Check this percentage against actual monthly margin percentage figured on sales. If this percentage is not maintained, profits will suffer. The net profit column will show 5% for each month under "Estimated %—1941." Check this against actual return each month.

Estimated and actual sales may be computed by departments instead of running one total but the principle is the same. If desired, columns may be run for purchases, cost of sales, actual and estimated, but usually a separate budget is prepared for purchases.

for the entire year. This happens in all businesses because fixed expense, such as rent and insurance cannot be cut in low-volume months.

If Simpson keeps within budgetary limits, he will average up safely for the year even though ratios of expenses to sales are high in some months. As long as his overhead expense is kept to 30%, the other elements of sales, namely cost of sales and net profit, will take care of themselves.

Keep overhead always in sharp focus. A budget, broken down into monthly estimates for monthly check-over with actual results, enables you to do this easily.

Budget estimates should be checked monthly against actual results. This close attention to the details of a business is worth while even though large discrepancies are not disclosed.

Sometimes the sales volume is geared higher than previous years' sales have averaged. In times like these, with defense programs accelerating, higher wages, and additional billions in circulation, it is wise to figure high on sales.

Those who gear their budgeted sales volume high may not always make their goals but it is a sales stimulant. If you set up a substantial quota and try to make it, you will more than likely fare better than if you amble along month after month hoping to get somewhere. Each salesman may be given his share of the budget quota and checked regularly for performance.

Dealers who use budgets state that they disclose many sales weaknesses and expense leaks, that it isn't difficult to keep within budgetary figures if estimates are checked regularly against actual performance.

A budget puts a straight-jacket on overhead so that expenses do not run wild. However, it doesn't pay to cut expenses too drastically in a budget and then try to live up to the estimate. This may do more harm than good. You must spend money to make money.

*There Is No Substitute For Experience*

## A UNIQUE DESIGN!

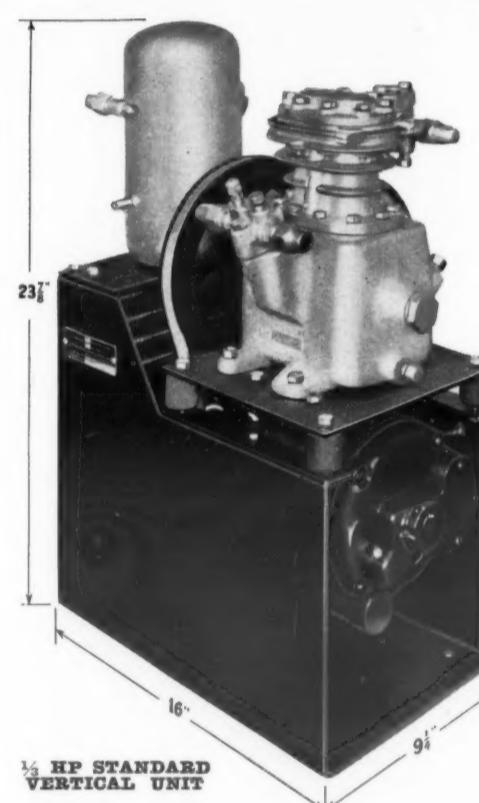
### Servel Vertical Units Give Improved Performance in Limited Space

SERVEL's Silver Fleet Line for 1941 includes four new vertical units that fill a long-felt need in standard commercial and low-temperature applications.

These compact units save floor space when installed adjacent to existing fixtures. They conserve both space and material in self-contained applications.

The unique "tunnel" shroud (patents pending) improves condenser performance in these vertical units. Because the motor-compressor is rubber-mounted on the shroud, the units can be bolted securely to the frames of fixtures.

These new units, added to more than 80 standard Silver Fleet models, provide still another striking sales advantage for Servel customers.



For full particulars, write today to Servel, Inc., Electric Refrigeration and Air Conditioning Division, Evansville, Indiana.

OVER 80 STANDARD MODELS—  
AIR-COOLED AND WATER-COOLED  
1/2 H.P. TO 20 H.P.



## Profit-Proven Territories

### NOW OPEN

### for the right Distributors

One of America's oldest, largest and most successful commercial refrigerator manufacturers now has available a number of choice territories for ambitious men who want to increase their earnings.

Three great, patented advantages—Floating Air, Coolite, 'F' Construction—promoted nation-wide by the most intensive advertising drive in our history make selling job easier.

You will have a complete line for grocers, markets, florists, bakers, restaurants, beer dealers and all other users of commercial refrigeration.

Wire or write at once to the

**ED FRIEDRICH SALES CORP.**  
SAN ANTONIO, TEXAS



# NEW LINE OF REVENUE-PRODUCING EQUIPMENT



New Tuthill 2½ and 5-gallon Freezers and Auxiliary Cabinets

## New Profits for Distributors

The new extra profit line you've been looking for! America's outstanding complete line of automatic freezer equipment for ice creams, frosted malts, sherbets, ices and frosted fruit drinks. Distinctive beauty. Exclusive features. Competitively priced. Backed by most comprehensive merchandising program in the industry. Write for complete Franchise facts.

REFRIGERATION PRODUCTS DIVISION  
TUTHILL PUMP COMPANY  
935 EAST 95TH STREET • CHICAGO, ILLINOIS

*An Innovation  
IN MORE WAYS THAN ONE!*



All-Aluminum brazed evaporator for a GS-658 Gale refrigerator. The front edge molding is an extruded shape. Half the door hinge is formed by merely milling out sections.

## Pre-Cooling of Celery Brings Premium Prices

### Storage Plant Handles Onions In Winter

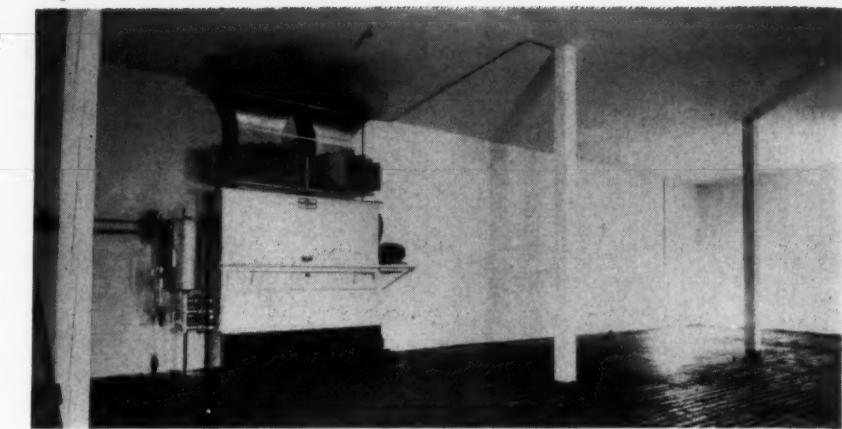
BROOKS, Ore.—Pre-cooling of celery and winter storage of onions at exacting temperature and humidity requirements in the LaBish Cold Storage Co. plant here have brought premium prices for these products to the growers in this territory.

Four large storage rooms comprise the plant, each cooled by a Niagara brine spray unit. During the celery season, running from about June 15 to Nov. 20, celery is brought directly to the plant and stored for 24 hours to be cooled to an average core temperature of 36° F. and then loaded in railroad refrigerator cars. Because of pre-cooling, celery holds better in transit and can be shipped to all parts of the country with merely an initial icing of the refrigerator car.

When the plant was first built in 1936, it consisted of two rooms, 80 x 50 x 16 ft., each cooled by a No. 333 cooler. Output during the first year was 350 cars of celery.

In 1937 another room, 80 x 50 x 17 ft., was added, this also being cooled by a No. 333 unit. At the same time the company installed a Niagara aero-evaporative condenser to replace a shell and tube condenser and cooling tower. Volume of celery handled has increased to a 1939 total of 622 cars, and further increase is expected.

Recently the company added still a fourth room 105 x 50 x 17½ ft.,



Latest cold storage room added by LaBish Cold Storage Co. is cooled by the brine spray unit seen above.

cooled by a No. 675 brine spray unit equipped with surge drum and electric liquid level control. Another evaporative condenser was also installed in the engine room.

These brine spray coolers, which require no ductwork, are controlled automatically, each unit being equipped with room thermostat and back pressure regulating valves.

From Dec. 1 to May 1 each room is equipped with portable racks and shelves and filled with grade A sacked onions, so placed that one sack does not rest on another. Temperature is held automatically at 31° with less than ½° fluctuation, and humidity is also closely controlled.

Officers of the cold storage company are Ronald E. Jones, president; D. C. Roberts, vice president; and Louis Lachmund, treasurer.

### Anemostats Available In Commercial Heaters

NEW YORK CITY—Anemostat high velocity air diffusers will be made available to buyers of industrial and commercial unit heaters through arrangements that have been made by a number of manufacturers, according to a recent announcement by the company here. Under the new sales plan the diffusers will be supplied with certain types of heaters manufactured by Young Radiator Corp.; Modine Mfg. Co.; McCord Radiator Co.; Niagara Blower Corp.; and the Webster-Nesbit Co.

The diffusers have been available with Trane projection heaters for the past year.

## Diversity of Installations Marks Firm That's Expanded 3 Times In 2 1/2 Years

MINNEAPOLIS—Rapid expansion of its commercial refrigeration business has forced Automatic Refrigeration, Inc., Frigidaire commercial and household dealership headed by L. E. Erickson, to enlarge its quarters three times in its 2½ years' existence. Present quarters include a basement and main floor with total floor space of 5,200 sq. ft.

Growth of the firm is attributed by Mr. Erickson to good 24-hour service and adequate training of salesmen from an engineering viewpoint. Twelve of the 25 employees have a total of 144 years of experience with the specific products they sell and service.

### 500 DISPLAY CASE SALES

Although the firm took over a dealership in Frigidaire domestic refrigerators and ranges recently, most of its business is in sales of display cases and walk-in coolers for groceries and meat markets, water and beer cooling equipment, and special installations for restaurants and cafes. More than 500 refrigerated display cases alone have been sold in the past two years, Mr. Erickson stated.

Indicating the diversity of its restaurant installations is an insulated glass-chilling plate to accommodate 1,200 glasses, built for Harry's cafe. The plate is of stainless steel and is used to chill champagne and cocktail glasses to a frosting temperature. A "Freon" compressor cools the plate.

Typical grocery installation made

by the firm recently is that in the block-long Crystal store here. Equipment includes a 10-ft. dairy case, one U35OD frosted food cabinet, two 10-ft. meat display cases, an 8-ft. delicatessen case, an 8-ft. fish case, one 15 x 10-ft. walk-in vegetable cooler, a WF375 Frigidaire water cooled compressor, and a C620 forced air Frigidaire cooling coil.

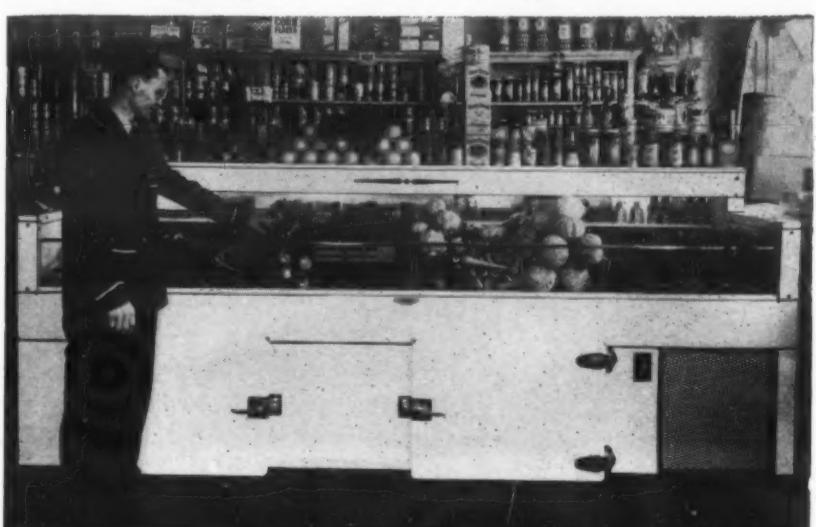
Another recent installation is a 13,500-cu. ft. storage addition built for the Rockler Fur Co. This room is refrigerated by a 3-hp. water cooled Frigidaire compressor, waste water being used to spray the roof during summer to reduce sun heat load.

About 20 to 25% of Automatic's total business volume comes from its 24-hour service department. "Because many restaurants and safes are open nights, this is important," Mr. Erickson explains, "if we wish to provide servicing and build up goodwill."

### U. S. Asks Bids For New Barracks Equipment

ST. LOUIS—The Federal government has asked bids for refrigeration and water cooling apparatus for a new addition to Jefferson Barracks army post to be completed in September, with facilities for 10,000 additional men. Refrigeration equipment will include beverage coolers, walk-in cases, meat storage rooms, and water coolers for dormitory use.

### Grocer Displays & Stores Vegetables in Case



This 10-ft. case for vegetables was installed by Automatic Refrigeration in Larson's Grocery, Minneapolis. It is powered by a ½-hp. compressor.

ALCOA ALUMINUM



Reg. U. S. Pat. Off.

## Carrier Corp. Prepares Its Dealers for Their 'Greatest Year' At First National Convention

### Sales Contests For Dealers Announced

SYRACUSE, N. Y.—"Get it done in '41" is the slogan of a sales contest for dealers and dealer salesmen announced by Carrier Corp. at the company's recent national convention here. Merchandise prizes will be awarded, based on sales increases made this year over 1940 business.

Separate contests for installed air conditioning, commercial refrigeration, and Carrier portable room coolers were announced at the meeting.

During the first afternoon of the convention the Weathermaker line of air conditioners was presented by W. R. Hill, and new commercial refrigeration products were introduced by S. H. Ellison. A discussion of sales methods in unit heating was given by W. D. Graham, and a talk on the Silica Gel method of dehydrating air was made by J. C. Patterson.

The Carrier "Smoke House" was described by E. A. Bailey, and the new line of portable room conditioners was presented by G. T. Long. Mr. Long also discussed the market for residential heating and humidifying equipment.

A talk by E. Cloud Wampler of Stern, Wampler & Co., Chicago, and a member of the Carrier board of directors was well received by dealers present. Mr. Wampler defined an optimist as a man who "regards the future with uncertainty" and at the same time presented the attitude of the men who are financially interested in the company.

During the evening field men, factory men, and dealers attended a banquet and floor show.



E. T. Murphy, Carrier vice president, greets Gill Scobell of G. L. Scobell Co., Erie, Pa., at the national two-day dealer meeting. A. P. Shanklin of the company's Atlanta office is at right.



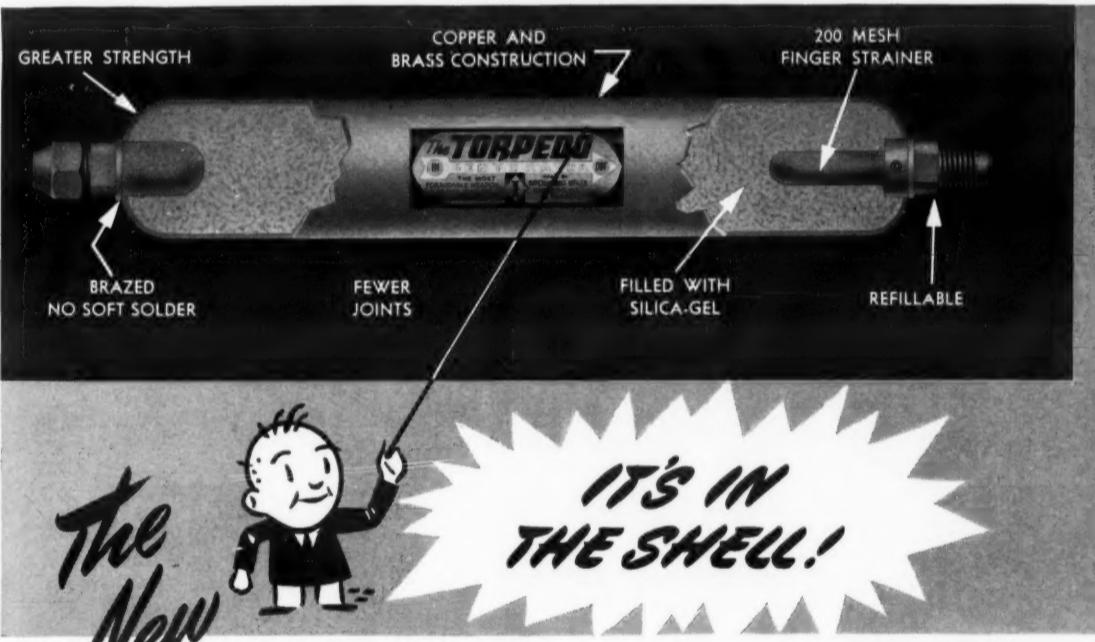
J. I. Lyle, Carrier president, enjoys talking with O. Krauss, veteran dealer from St. Petersburg, Fla., during the dinner and floor show held on the "Good Ship Carrier." White hats worn by dealers in the background aided in carrying out the nautical motif of the evening. Approximately 500 persons attended the dinner.



V. S. Day, assistant to Mr. Murphy, talks over the St. Louis situation with J. H. Bailey and S. L. Elmer, Jr. from the St. Louis office. R. J. O'Brien, marketing analyst, is at the extreme left.



J. A. Bentley, financial vice president, greets R. T. Tree, eastern manager, as Maurice T. Firestone, New York dealer manager, looks on. Arthur James, J. W. Brooks & Sons, Chattanooga, Tenn., is in the background at left, and Dan H. Willis talks with A. E. Melling in background center.



## TORPEDO (Patent applied for) DEHYDRATORS

• Here is the most formidable weapon ever developed in the war on moisture—the new line of Imperial Torpedo Dehydrators. If you will study the cut-away view above and the view below that shows the strainer removed, you will easily see why this Dehydrator sets an entirely new standard of construction.

Made in sizes up to 7 H.P. Imperial Filters and Accumulators also available in "Torpedo" design

Note the one piece streamlined shell which reduces the number of joints. With this construction brazed joints are used—no soft solder. Note also that it is packed with "Silica-Gel."

On your next job be sure to use Torpedo Dehydrators and lick the moisture problem.



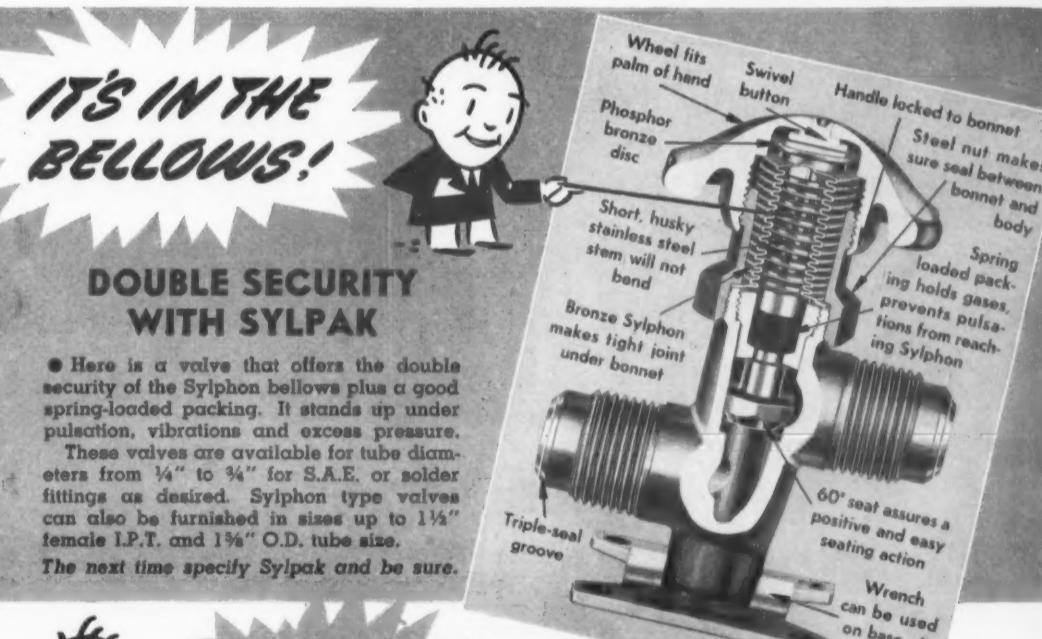
# IMPERIAL



• When the flare is drawn up against the groove in the seat of an Imperial Triple Seal Fitting the copper is actually extruded into the groove. This makes it possible to get a good tight joint without danger of twisting the tubing or shearing off the flare. Even

when the seat has been nicked or marred you can still make up a tight joint. You can reconnect as often as you wish and be sure of a tight connection that will stay tight.

When you order flare fittings from your Jobber be sure to specify "Triple-Seal".



• Here is a valve that offers the double security of the Sylphon bellows plus a good spring-loaded packing. It stands up under pulsation, vibrations and excess pressure.

These valves are available for tube diameters from  $\frac{1}{4}$ " to  $\frac{3}{4}$ " for S.A.E. or solder fittings as desired. Sylphon type valves can also be furnished in sizes up to  $1\frac{1}{2}$ " female I.P.T. and  $1\frac{1}{2}$ " O.D. tube size.

The next time specify Sylpak and be sure.



THE IMPERIAL BRASS MFG. CO., 565 S. Racine Ave., CHICAGO

## Air Conditioning and Refrigeration Products

## Hold That Price Knife—

# 'Product, Profit, Prestige' Are Answers To Price Competition

Terhune Lists Methods To Try Before Throwing Profit Possibilities In the Mud

By E. A. Terhune, Sales Manager, Electric Refrigeration & Air Conditioning Division, Servel, Inc.

A friend of mine once said that when he could find time he was going to have a nervous breakdown. As I stand on the platform at the top of the Empire State building and look over the fields of this commercial refrigeration business, I am wondering if the majority of allied manufacturers, distributors, dealers, and salesmen are not now taking the time off to have one themselves over this apparently nerve-wracking problem of meeting and beating competition.

Some of the methods used remind me of a conversation I had with a New York City cab driver:

"Funny things ya see in this game," our cab driver said. "Frinstance, I'm drivin' along 52nd Street one night, see, and there's a guy standin' on the sidewalk with a dame, and he flags me. So I pull up and open the door, but, no, that won't do."

"Get out and put your coat down on the street for the lady to step on," this guy says to me.

"So I figure, what the hell, it's good for a tip, so I get out and put my coat down, and this dame gets in the cab, and the guy gets in, and off we go, and sure enough, he tips me a buck."

"But what I don't get," said our cab driver, turning around and looking at us earnestly, "what I don't get is where the hell the guy ever picked up a crazy idea like that."

It looks to me as though some operators were doing about the same thing in their selling—following any crazy method suggested by competition—tossing their profit possibilities in the mud for a pittance. It's like the fellow who jumped out of the tenth story window of a hotel and as he passed the fifth, a man poked his head out of the window and asked him why he did it. To which the jumper replied in transit, "At the moment it seemed like a good idea."

Recently we ran a contest with cameras as prizes for the best

answers to the problem of beating competition. Many replies came in and many good ideas were submitted. There were some, however, who frankly admitted—directly or indirectly—that they were a bit at sea—a bit confused; and, in fact, a few who were apparently ready to throw up the sponge in the battle to come out with a profit against cutthroat and insane practices of certain elements of competition.

There is no cure-all. There is no rigid formula, which, if followed will lead you unerringly through the haze of complex sales situations to the fountain of easy profits. But there are fundamentals involved—and the recognition of these fundamentals is half the battle in beating competition.

Before you get into any fight, you'd better know what you're fighting for. If even the winning of a fight means that as a result of it, you lose anyway, then why go ahead on such a silly program.

### LIKE ARGUMENT WITH WIFE

If any of you are married and have had an argument with your wife, you know what I mean. Why have a fight with her and apparently win—only to find that as a result you have lost the peace and quiet of your home life?

Why battle competition without first determining how far you can go before the fruits of victory become unworthy of the price of combat?

Why wage blind and unreasoning war to get orders at profitless prices, only to find in the end that your reward is another ticket on a one-way ride to bankruptcy? Selling without a profit is not selling at all.

First of all establish a policy and a principle in your selling operation—and hold to it regardless of competition. Have the intelligence and the intestinal stamina to pass up a sale where it excludes a living profit margin.

Each one of you probably feels that no other operator has quite as bad a cutthroat competitive situation to meet as you have. Wake up and smell the coffee. Get away from self-sympathy. Start applying common sense and modern, successful methods.

The salesman isn't alone at fault

in being responsible for today's chaotic cut-price market in this industry. Neither is the dealer alone at fault. Nor thirdly is the manufacturer the sole heir to responsibility. All three of them have had their share.

### 'NECKTIE COUNTER' SALESMAN

The weak and incompetent salesman who should be behind the necktie counter instead of a specialty selling business, has in the last analysis only PRICE to sell. His inability or inexperience or lack of sales acumen leaves him no weapon except price, to get the order away from the competitor who knows his stuff. That salesman is digging his own grave and tending to drag other weak ones along with him.

The dealer who operates his entire business on the same basis is equally responsible. He hires men on a sliding scale of commissions and thereby leaves the consummation of the sales dependent upon chiseling by a salesman, who, in a desperate attempt to get a commission so he can eat on Saturday, will finally resort to BUYING the sale from the customer at the lowest possible dollar, instead of SELLING it to him at a profit. The dealer is then definitely created a "policy of the house" that leaves in his hands the responsibility for a disrupted market.

### 'LETTERHEAD SALES POLICY'

And finally, the manufacturer who operates on a wild cat sales policy in a frenzied attempt to get a little more business, is none the less responsible. When any manufacturer will sell on a wholesale basis to anyone who prints a letterhead—and at a full distributor discount—or makes his product available to all the "cat and dog operators" in the industry, how can he expect to end up anywhere except with a disorganized conglomeration of profitless operators?

That manufacturer has not only aided, abetted, and promoted cutthroat tactics between different competitive operators in the industry, but has done worse by creating uncontrolled competition between dealers and salesmen of his own product. As if such a situation were

not enough, we even find a condition wherein a manufacturer says he will not sell dealers at dealers' discount—and then turns around and presents a dealer with a hammer, saw, and a bag of nails and proceeds to quote these dealers at MANUFACTURER prices!

All that I've outlined thus far is a matter of fundamentals. Now let's get down to cases in analyzing the concrete methods to be used in meeting and beating competition. I've said that no formula or cure-all can be given, which will give you automatic success, with the ease and simplicity of playing a phonograph record. The reason for this is that the APPLICATION of any formula in selling involves so many variables, such as consumer needs, ambitions, and finances, and salesmen's personalities, abilities, etc., that success is not assured simply through the knowledge of a basic sales formula of the essentials involved.

On the other hand, I can give you a basic analysis of all the factors involved in your beating competition. You can apply it to your own various products and conditions and remove the confusion of mind as to what it takes to do the job.

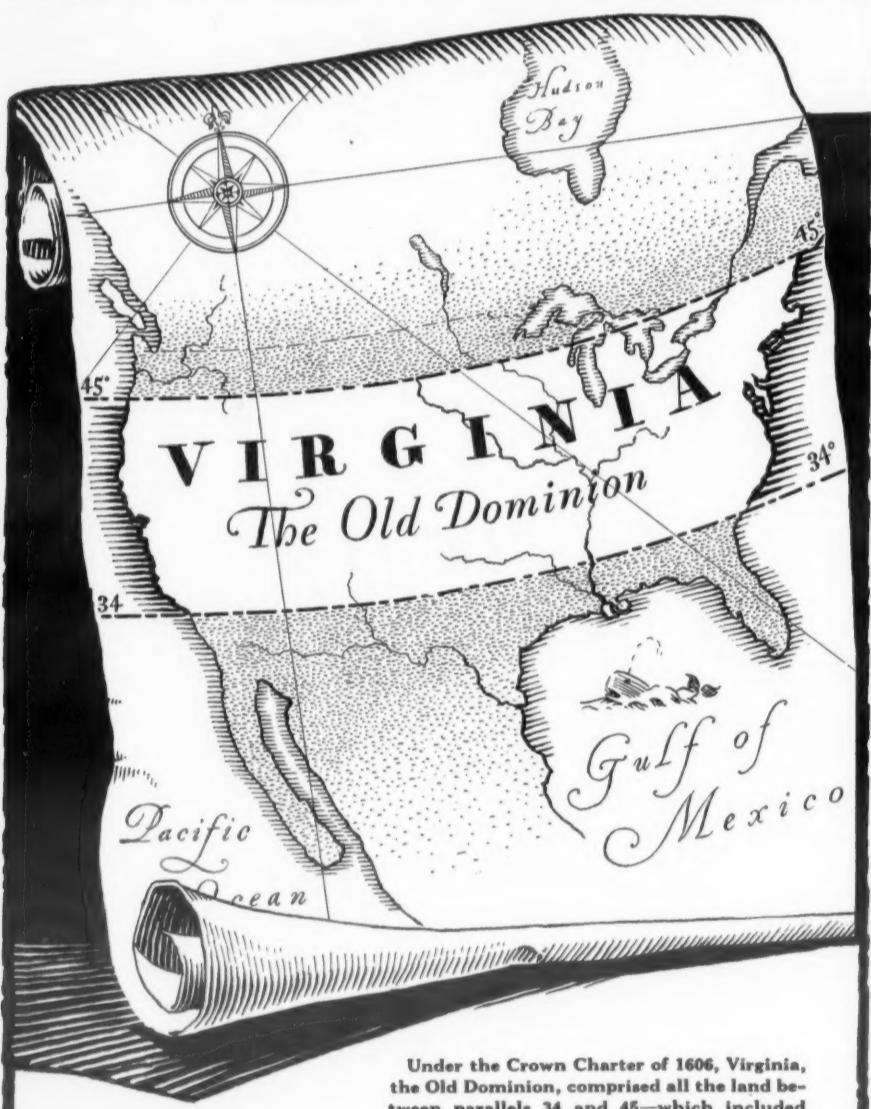
I have labeled it "the four P's in beating competition." Your successful presentation and conviction of the prospect on any one or combination of these four P's may easily lead you to the sale—and on a profit basis.

They are: **PRODUCT, PRICE, PROFIT, PRESTIGE.**

First, The **Product**, which breaks down into quality of workmanship, material, and design. Knowing and selling the intrinsic value of the product always has been and always will be the first elementary step in any sale. The failure to properly handle this phase of the operation results in probably 80% of the reduction of a sale to a price fight level.

Your chances of building up a strong enough sales offensive to swing a profitable sale through only the use of **PRICE, PROFITS, and PRESTIGE** are not over 20% if you don't avail yourself of the opportunities offered in a forceful presentation of the product—its features, its quality, and its performance.

The intelligent use of the quality (Concluded on Page 25, Column 1)



## VIRGINIA—a name that has earned respect

Virginia in 1941 outdoes even the Old Dominion—for "Virginia" Refrigerants are sold in every one of the 48 States.

Refrigerant Jobbers who sell Virginia products—from Maine to California, from Michigan to Texas—know that they can depend on Virginia—for quality, service, and speedy delivery.



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Located at tidewater  
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BUY YOUR  
KINETIC'S  
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**ON THE JOB  
REPLACEMENTS**  
**FOR ALL LEADING  
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WORLD'S LARGEST MAKERS OF V-BELTS

## How To Use the 'Four P's' To Meet Purely Price Competition

(Concluded from Page 24, Column 5)  
parts demonstration kit is one of the most potent factors in the dramatic presentation of the product. The eye sees 22 times faster than the ear hears. You've got to convince the prospect through his SENSES—and most salesmen apparently believe that the man he's trying to sell has ONLY EARS—that talk and talk alone is the only conveyance for selling ideas.

Others there are who admit also that the prospect can SEE—and will show pictures of the product, album demonstrations, testimonials, etc. There are still a few smart operators who realize that a prospect can also FEEL with the sense of touch, and take advantage of this by using the parts demonstration kit. Let the prospect take the parts into his own hands, for the same reason that the automobile industry tries to get you behind the steering wheel on an actual demonstration ride, wherein you personally touch and manipulate the steering wheel and clutch and the brake.

Get this simple logic straight: if you don't know your product thoroughly—what it is and what it will do—you've already got two strikes on yourself in this battle to beat competition. You've got to know your product if you want to keep your sales success independent of by-guess and by-god methods of producing profitable sales.

### THREE FACTORS IN PRICE

Second, let's consider Price. The smart operator just doesn't talk price at all. In fact, he practically refuses to quote price, until he has had the opportunity of showing the prospect what he's going to get for the money he spends. The first thing to be considered in using PRICE to beat competition, is to recognize three factors involved in keeping above the cutthroat level—economical buying and economical sales operation, a profit margin standard, and the proof of the difference between value and price in the customer's mind.

Any worthwhile industry of this sort is highly competitive and you can blame only yourself if your

actual price quotation is so abnormally higher than competition that you automatically put yourself out of the running altogether.

There is a reasonable balance between unnecessary solid gold quality with an exorbitant price on the one hand, and a cheapness of quality that prevents customer satisfaction, coupled with a profitless price on the other hand. A fair balance of the essential high quality with a fair price, will make a sale and at a profit, even though that price is not the lowest on the market.

To accomplish this, you've got to buy good materials at the proper competitive buying levels and maintain a properly low overhead in your administrative and sales operation, that will not choke off a fair and reasonable price at the very start.

Next, there can be no compromise with the establishing of a profit margin standard as a basic policy of your entire business, regardless of the anxiety to consummate any particular competitive sale. When you've accomplished these proper standards of operating costs and profit margins, you have but one other problem in using PRICE as your own weapon in beating competition.

That is, to prove conclusively to the prospect, the difference between his FIRST COST (or the initial price), and the ultimate cost in conjunction with services rendered by the product and by yourself; and that spells VALUE. It takes no imagination to evolve the cost and savings factors in terms of economical electric consumption, future service costs, less depreciation through longer life, interchangeability and availability of parts, savings from premature obsolescence, and so on.

### STUDY HIS BUSINESS

The third factor in beating competition is Profits.

The result of our recent contest showed less consideration of this subject, by 50%, than of any of the other three. It has the most powerful possibilities. Profits are what the prospect is interested in, just as you are. He, too, is confronted with

his own particular price-cutting competition and a real problem in selling at a profit and not at a loss.

Interpret for him every factor of your offering, in terms of PROFIT TO HIM. Show him profit in the utility of your product: the sales creating value of your machine in conjunction with his fixture; the profit he makes in operation of your machine and equipment in comparison with the competitor's. Prove to him the profits in operation and service dependability of your product.

And don't stop there as most every operator does. Show him profits in merchandising ideas. Study his business. Offer money-making ideas or new arrangements of his fixtures, new sales-getting promotion ideas. In short, do a real back-scratching job and you'll find he likes it and will place you above the run-of-mine peddler, who is trying to sell him on a piece of cast iron or steel at a price.

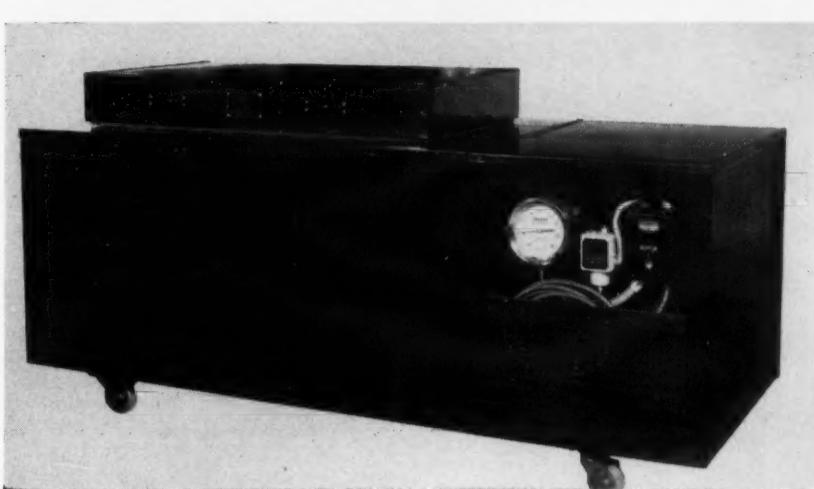
And fourth, comes Prestige in beating competition. This one factor alone is enough to beat any price-cutting competition, if you've got enough of it. It involves a reputation of character in your community—character of your company, yourself, your salesmen, and your policies. It involves a reputation for fair and honest dealing and for a superiority of service rendered, that no price chiseler can match. It involves satisfied users who will freely and enthusiastically help you sell your product to another merchant who has similar needs and ambitions to those of the satisfied user.

The reputation you need for this phase of competitive selling cannot be bought. It takes time and experience and "tops" in operation over a long period to get it, but it is available to everyone of you through your everyday work. Cultivate a good reputation and connections that will breed this powerful sales weapon of prestige in your business community.

And in selling you these ideas on how to increase profitable sales against cut-price operators, let me apply this same theory in part by citing to you just exactly what successful Servel distributors think and do in making these four P's effective in their own business. Of all the contest returns it is interesting to note that 26% of the suggestions involved PRODUCT; 29% dealt with PRICE; only 13% considered the PROFIT story; and 32% emphasized PRESTIGE in selling.

## Dimco Low-Temperature Cabinets Find

### Variety of Industrial Applications



DETROIT—Portable low temperature cabinets are now being built by Detroit Ice Machine Co., here for use in control of tolerances in industrial processes. Certain equipment, such as hydraulic valve controls, must be tested at temperatures ranging from 150° to 35° F. below zero.

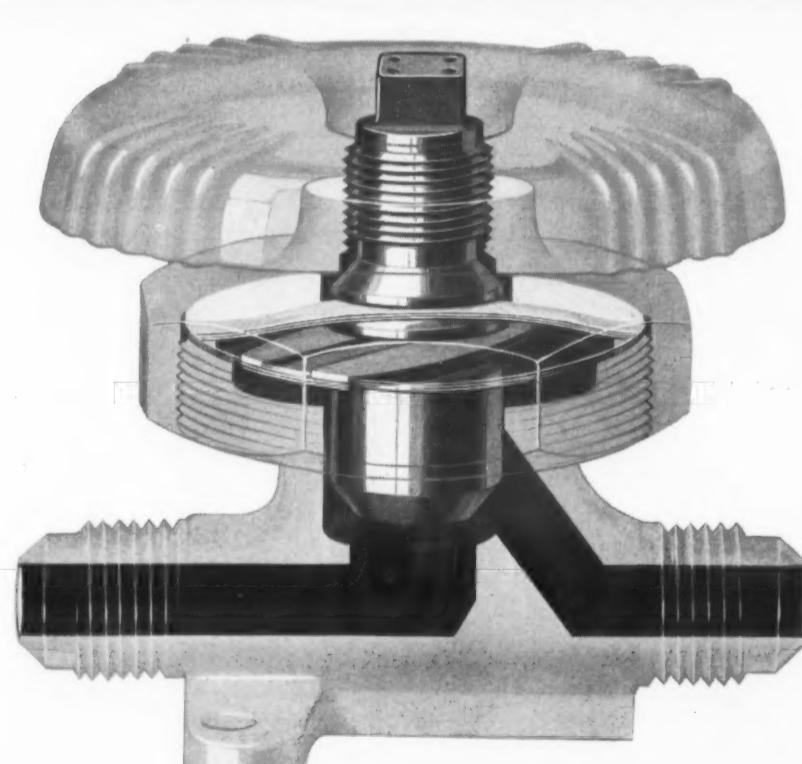
Another use for the low temperature cabinets is to hold aluminum airplane rivets at minus 40° F. ready for assembly. At this temperature the rivets shrink, and when subsequently warmed up, they expand and fill the holes more tightly. Another use for the low temperature cabinets is testing bimetal strips under a variety of temperature conditions.

The portable freezers are built in sizes from 5 to 100 cu. ft. The tank is composed of smooth refrigerated plates with a Shoup process metal finish. Insulation is 10-inch corkboard and the whole unit is encased in cold rolled furniture steel and finished with machinery enamel.

The low temperature units are powered by Frick "Freon-12" compressors of the air-cooled type, especially adapted for low temperature service. A dial thermometer with a bulb in the cabinet is standard equipment. A special adjustable low-temperature thermostat keeps the freezer well within the limits of plus or minus 2° F.

**Proof  
OF STAMINA**

## WEATHERHEAD PACKLESS VALVES



...Tested through  
**100,000**  
on-and-off cycles  
without a fracture

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*Refrigeration Valves, Fittings and Accessories*

### — Simplicity

— a valve must open or close a line with minimum of effort and time.

### — Simplicity

— a valve must contain the fewest possible working parts with nothing to get out of order.

### — Simplicity

— valve must be compact and trim in appearance.

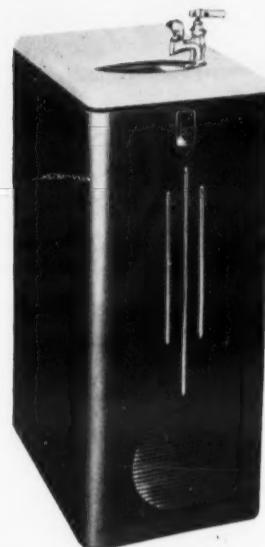
### — Simplicity

— a valve must be easy to install.

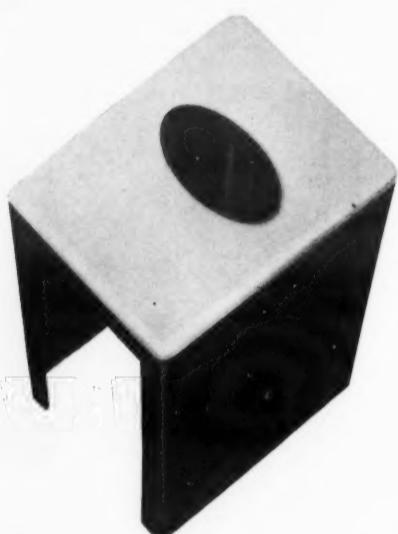
### — Simplicity

— a valve must be built of modern metals and designed from advanced engineering knowledge.

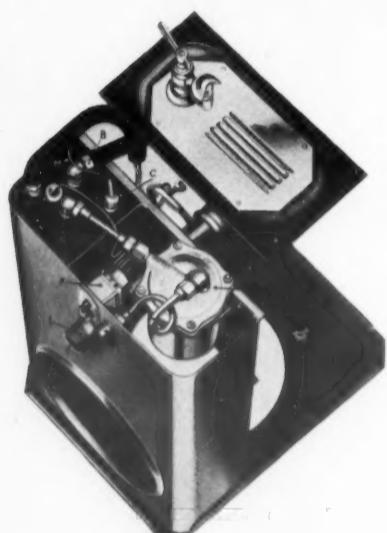
**WEATHERHEAD**  
*Simplicity*  
valves are just what the name implies  
**Simplicity**



MODEL DUO-1  
CABINET COOLER



SHELL EASILY REMOVED  
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## Question of the Week

Answered By

F. O. JORDAN, Registered Consulting Engineer, State of Michigan

### Using Pressure Drop Tables To Size Tubing

Indianapolis, Ind.

Dear Sir:

I am enclosing a print of a sketch that shows the refrigerant tubing layout of an installation we are just about to start on.

The customer has had somebody check the tubing sizes on the print, and he thinks some of them are wrong. Since it means a lot to us for this tubing to be right, would you please check these sizes too?

The refrigeration loads on the systems are, 59 tons for compressor No. 3, 77 tons each for compressors Nos. 4 and 5, and 35 tons for compressor No. 8. These capacities are based on 42 pounds suction pressure with "Freon," and 126 pounds head pressure. We are going to install evaporative condensers.

The pressure drop across the expansion valve for No. 8 is to be 90 pounds. On the others, the pressure drop is to be 70 pounds, because the receiver for No. 8 is to be a good deal higher than the others. This is shown by the sketch.

H. E. K.

**Answer:** Sizing refrigerant tubing is not a complicated job, because there are so many dependable refrigerant pressure drop tables, and because the allowable limits have long ago been set by experience.

#### SUCTION LINES

In sizing suction line tubing, the important point is to make the tubing large enough to prevent the pressure drop in the suction line from penalizing the compressors. Making the tubing small will reduce the tubing costs but will also reduce the suction pressure at the compressor with resultant losses in compressor capacity and efficiency, thus making the first and operating costs of the system much higher. There is nothing to be gained,

however, by installing tubing of excessive size. In fact a great deal of trouble may result from burned out compressor bearings due to trapping of oil from the suction gas if the gas velocity in the "low side" falls below 1,000 or 1,500 f.p.m.

Generally good practice is to limit the pressure drop to about 4 pound maximum between evaporator and compressor. With this installation the advisability of installing heat exchangers is indicated.

There can be no question regarding the value of this particular accessory, not so much because of the resultant increase of the system efficiency, but more because its use tends to prevent undesirable "flashing" in the liquid line and dangerous "frostback."

Since the pressure drop through the heat exchanger is about 2 pounds, the following table is based upon a pressure drop of 2 pounds through the various suction lines. Since  $4 - 2 = 2$ .

The tubing lengths shown by Table No. 1 are the approximate effective lengths including horizontal and vertical runs, and the effect of fittings as taken from the plans. Just to show that the gas velocities are not low enough to cause oil trapping, the gas velocities have been calculated.

The velocities are based upon a liquid temperature of  $90^{\circ}$  as this is reasonable with an evaporative-cooled condenser at  $80^{\circ}$  wet bulb, and upon suction gas at  $45^{\circ}$  saturation temperature with  $10^{\circ}$  superheat coming from the coil and  $35^{\circ}$  superheat leaving the heat exchanger.

These velocities are in the neighborhood of 3,000 to 4,000 f.p.m. as usual with the properly designed job of this size in air conditioning service. Therefore your sizes appear to be satisfactory.

#### LIQUID LINES

In sizing liquid lines one must be careful to keep the pressure drop low enough to leave sufficient liquid pressure at the expansion valve at the condenser pressure existing

### Table 1—Suction Lines At $45^{\circ}$ 'F-12'

Compressor Number	3	4	5	8
Load (Tons)	59	77	77	35
Effective Lengths Tubing (Feet)	40	30	30	30
Pressure Drop (Lbs. Per Sq. Inch)	2	2	2	2
Pressure Drop/100 Ft. (Lbs. Per Sq. Inch)	5.0	6.7	6.7	6.7
Dia. Tubing (Inches)	3 1/8	3 1/8	3 1/8	2 1/8
Tubing Area (Sq. Ft.)	0.048	0.048	0.048	0.033
Cu. Ft. "F-12" Per Minute	145	189	189	86
Gas Velocity (f.p.m.)	3,000	3,940	4,250	2,600

### Table 2—Liquid Line Sizes

Compressor Number	3	4	5	8
Load (Tons)	59	77	77	35
Elevation Receiver (Ft.)	22	22	22	44
Elevation Pressure (Lbs. Per Sq. Inch)	11	11	11	22
Dia. Tubing (Inches)	1 1/8	1 1/8	1 1/8	1 1/8
Pressure Drop/100 Ft. (Lbs. Per Sq. Inch)	7	4	4	0.7
Effective Length Tubing (Ft.)	95	110	130	140
Total Pressure Drop (Lbs. Per Sq. Inch)	6 1/2	4 1/2	5	1
Pressure Required At Expansion Valves (Lbs. Per Sq. Inch)	112	112	112	132
Required Condenser Pressure (Lbs. Per Sq. Inch)	118 1/2	116 1/2	117	133

### Table 3—High Pressure Gas Line Sizes

Compressor Number	3	4	5	8
Load (Tons)	59	77	77	35
Dia. Tubing (Inches)	2 1/2	2 1/2	2 1/2	2 1/2
Pressure Drop/100 Ft. (Lbs. Per Sq. Inch)	7	10	10	6
Effective Length Tubing (Ft.)	95	110	130	140
Total Pressure Drop (Lbs. Per Sq. Inch)	6 1/2	11	13	8 1/2
Compressor Head Pressure	126	126	126	126
Condenser Pressure (Lbs. Per Sq. Inch)	119 1/2	115	113	117 1/2

under operating conditions. As a rule, the allowable pressure drop is worked out by subtracting the required pressure at the expansion valve from the condenser pressure.

In the absence of information regarding condenser pressures, I have added the pressure differential upon which your expansion valve selection is based to your evaporator pressure to determine the pressure required at the expansion valves. Next I have selected the liquid tubing sizes within the recommended range given in the American Society of Heating & Ventilating Engineers' guide, and calculated the pressure drop through the various liquid lines according to their effective lengths as shown in Table 2. These pressure drops added to the pressures required at the expansion valves show the condenser pressures required.

These all indicate approximately the condenser pressures you should get, except for Unit No. 8. Here the condenser pressure required is so great that larger tubing would do no good. It appears that the expansion valves for Unit No. 8 should be selected on about the same 70 pounds differential as the others.

#### HIGH PRESSURE GAS LINES

If the pressure drop through the high pressure gas line is too great, the power consumption of the compressor is increased and its capacity and efficiency are reduced because head pressure is raised, while the capacity of the condenser is reduced due to the reduction in condenser pressure.

Good practice is to select the size of the tubing within the range

shown by the American Society of Heating & Ventilating Engineers' guide, calculate the pressure drop according to the effective length of tubing and check the effect on head pressure and condenser pressure.

In Table 3 I selected the tubing sizes, calculated the pressure drops and deducted them from the head pressure of 126 pounds at the compressor as given in your letter. On this basis, these tubing sizes should be satisfactory, as they show higher condenser temperatures than will likely be maintained with your evaporative condensers.

Therefore, the actual head pressures at the compressors should be lower than 126 pounds even under maximum conditions. To decide definitely, however, it would be necessary to see if the condensers used will deliver the necessary tonnage at the condenser pressures indicated in the bottom line of Table 3.

#### GUIDE BASIS

All tables used in selecting the above tubing sizes are given in the American Society of Heating & Ventilating Engineers' Guide since its data is generally accepted as accurate. This data and the methods employed above conform with standard approved practice in the field.

On this basis, the tubing system as sized on your blue print will operate satisfactorily. However, if I were sizing the job myself, I think I would have used the following sizes instead of the sizes shown:

$3\frac{1}{2}$  inch suction instead of  $3\frac{1}{8}$  inch on Units Nos. 4 and 5 (provided the pressure drop through the heat exchangers does not exceed 2 pounds).

$1\frac{1}{2}$  inch liquid instead of  $1\frac{1}{8}$  inch on Unit No. 8, (and lower the differential for the expansion valve).

$3\frac{1}{4}$  inch high pressure gas instead of  $2\frac{1}{2}$  inch on Units Nos. 4 and 5, because of the possibility of noise (about 6,000 f.p.m.).

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You, too, can cash in on this fast growing market, a source of sales and profits for progressive dealers everywhere. It will pay you well to write today for information on the complete Curtis line.

#### Curtis Refrigerating Machine Company

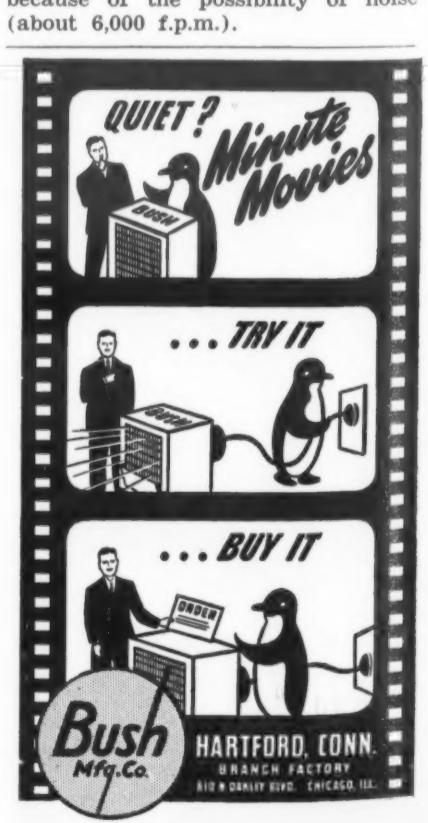
Division of Curtis Manufacturing Co. — Established 1894

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(Above) 7 1/2, 10,  
and 15 ton Central  
Type Air Conditioner

(At Right) 3 and  
5 ton Packaged  
Type Air Conditioner

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REFRIGERATION  
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## Cooney Installs Brine Spray System To Reduce Fog In Slaughter House

BUFFALO — Reduction of the "foggy" atmospheric conditions prevalent in a slaughter house—due to high relative humidities—has been accomplished by using brine spray units, reports L. N. Reed, chief engineer for Cooney Refrigeration Co. Two brine spray refrigeration systems have been installed by Cooney engineers in slaughter houses in Rochester, one for Levine & Lapidus and the other for Rochester Independent Packer Co.

Mr. Reed reports that the problem in a slaughter house is to keep a large room cold—and at the same time reduce the relative humidity. The "fog" is created by excess moisture from the slaughtered animals, which shrink 15% in weight during the slaughtering process.

Using conventional pipe coils, Mr. Reed has found, only results in an excessive accumulation of frost. To

combat this condition, he is using large brine spray units, making it possible to control the dewpoint temperature by regulating the brine temperature.

The brine used in the spray units is cooled by shell and tube coolers powered by Carrier 20-hp. ammonia compressors. Since the spray units constantly accumulate moisture from the air, they must be equipped with overflow pipes.

When the spray units overflow, the brine solution is weakened. To correct this condition it is only necessary for attendants to throw in a few shovels of salt when the units are in operation.

The brine spray units, using dew-point control, make it possible to keep the slaughter house atmosphere at the correct temperature and humidity, and at the same time eliminate all "fog" and excessive moisture from the room atmosphere.

## Cordley & Hayes Offers New Cooler Design

NEW YORK CITY—New line of self-contained electric water coolers designed by Frederico and claiming 100% increase in cooling capacity has been announced by Cordley & Hayes. Models for use with bottled water or for connecting to city water supply are included.

Units have a gunmetal furniture finish. Accessibility to working parts is provided by removable front and side panels, which can be replaced at low cost in event of accidental damage.

Bubbler type water coolers are equipped with a "Cold Saver" which uses cold waste water to pre-cool incoming water. Copper cooling coils in bubbler models are hot tinned inside and out. Bubbler models can be equipped with goose neck or push back glass fillers for restaurant use. An additional outlet connection is provided for installation of a remote bubbler in a separate room or on the floor above.

Bottle type coolers are equipped with stainless steel reservoir which is rustproof and easily cleaned.

## New Anemostat Permits Smaller Ceiling Opening

NEW YORK CITY—An improved and modified design of the type "C" Anemostat has been announced by Anemostat Corp. of America. The new high velocity air diffuser has an outside dimension of approximately two times the neck diameter, which represents a considerable reduction from the present size ratio.

Because of the smaller outer dimension, the ceiling opening for the Anemostat will be correspondingly smaller. This will permit installation between beams with a minimum of structural framing, it is claimed.

Outer cone of the new unit is finished with a moulded edge, which is said to prevent smudging or streaking of the ceiling.

Construction of the new type "C" Anemostat has been strengthened by increasing the diameter of the fixing stays and by the moulded edge.

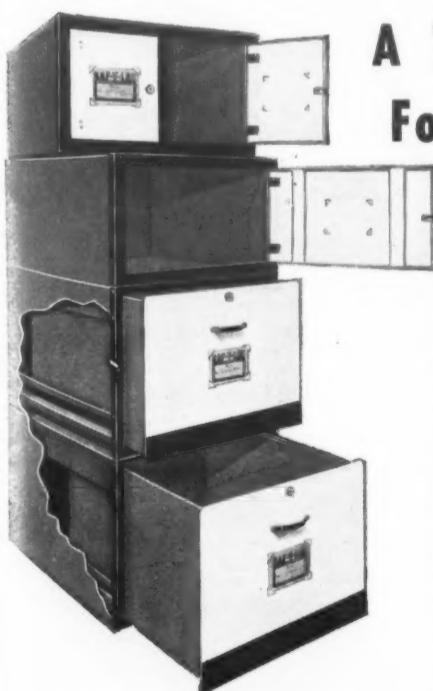
### Grocery Has 300 Lockers

DENISON, Tex.—Pollerts Grocery & Market Co. has opened a 300-locker frozen food storage plant here.

## A Master Equipped Plant Is A Profitable Plant

Because Masterbuilt Food Storage Lockers set a new standard in sanitation—protection against odors, dehydration, etc. they not only attract but hold customers.

Then, too, their flexibility of installation, saving in erection costs, means a definite saving to plant owners. Being individual units they permit removal from bank for any reason—a feature that saves time and money.



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### Details On Request

Find out why plant owners save money by installing Masterbuilt. Costs nothing to find out. Don't buy any locker until you have complete details on these up-to-the-minute lockers.

Endorsed and sold only through distributors of refrigeration and insulation.

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## Taylor Co. Suing On Locker Contract Claim

CHEYENNE, Wyo.—Taylor Refrigeration & Appliance Co. of Montana, operated by L. I. Taylor and A. T. Kronschafel, has filed a civil action in Federal District Court here against Castberg Creamery Co. of Powell, Wyo., seeking to collect more than \$4,000 on an alleged uncompleted sales agreement regarding a locker storage plant.

The complaint states that on Mar. 16, 1939, the creamery agreed to purchase a locker storage plant for \$5,500, on terms of \$1,100 down and \$201.75 monthly, but that only the down payment and four monthly payments were made. The Taylor firm seeks to collect a balance of \$3,393 with interest, plus \$750 collection fees.

## Propose Railroad Car As a Locker Plant For N. H. Town

WOODSVILLE, N. H.—Possibility of purchasing a discarded railroad refrigerator car and converting it into some sort of a cooperative frozen food storage plant has been suggested to farmers in this locality by F. L. Abbott of Central Vermont Public Service Corp.

Such a car, Mr. Abbott explained, could be purchased for \$300 or \$350, and the net price probably could be knocked down about \$100 through sale of old and unneeded iron from the car.

## New Temprite Cooler Keeps 'Clouds' Out Of Wine In Transit

DETROIT—An instantaneous wine cooler, used to precipitate organic solids before wine is filtered has been announced by Temprite Products Corp. here. Chilling of wine before filtration is said to prevent wine from becoming cloudy during shipment or while stored in domestic refrigerators.

Best clarification is obtained when wine is reduced to a point just above freezing—usually from 22° F. to 28° F. depending on the nature of the wine. The Temprite wine cooler is closed, to prevent oxidation by the air during the process.

In operation the wine coil of the Temprite is submerged in the liquid refrigerant itself, so that the heat of the wine passes directly into the main body of the refrigerant. Temperature control valves are set to maintain wine temperatures at any desired point.

The unit is designed to operate at the highest possible suction temperature for purposes of economy—usually only 4° F. below the exit wine temperature under full load conditions. The copper wine coils used are self draining.

Use of the wine cooler is said to reduce the time necessary to clarify wines from weeks or months to a few hours. The cooler is available for methyl chloride or "Freon-12" compressors in a size which cools 525 g.p.h. at a 30° F. temperature differential.

## Assembly Makes Cooler Into a Coin-Dispenser

BLOOMINGTON, Ill.—Three new coin-operated vending for carbonated beverages and a package assembly for converting ordinary coolers into coin-operated dispensers, have been introduced by Ideal Dairy Dispenser Co., Inc. here.

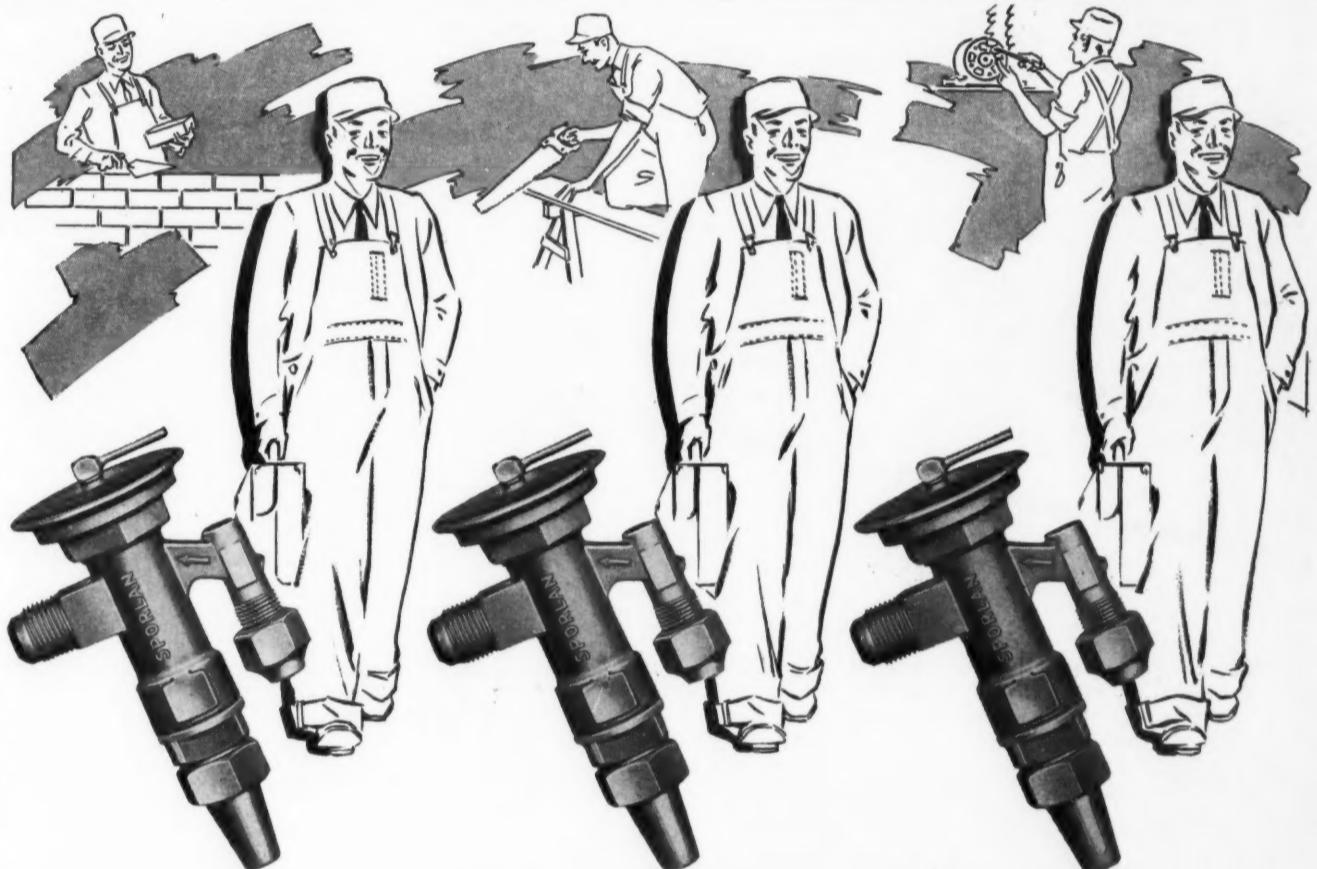
Vending mechanism is simple, there being only one moving part, and provides for seven different flavors, or one, if desired. Bottles are placed in the cooling compartment, necks of the bottles fitting in narrow slots which permit the bottles to be moved sideways but not taken out. The customer selects the flavor, slides the bottle through channels to the bottle release, inserts nickel in coin unit, and lifts out bottle.

Dispensers will vend 6, 8, 10, and 12 oz. bottles from the same loading. Cabinets are finished in white baked-on enamel, with other colors available at extra cost.

Model 110B has a capacity of 88 six-oz. or 82 twelve-oz. bottles in the vending compartment, and 105 six-oz. or 88 twelve-oz. bottles in the pre-cooler. The unit is dry cooled, with forced air convection system in the pre-cooler. It is powered by a 1/4-hp. twin-cylinder "Freon" unit.

Model 100B, which can be used for wet or dry storage, has a capacity of 88 six-oz. or 82 twelve-oz. bottles, and is powered by the same compressor as Model 110B.

Model 50B has a capacity of 57 six-oz. or 50 twelve-oz. bottles, and can also be used as either a wet or dry unit. Compressor is a 1/6-hp. single-cylinder "Freon" unit.



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## Michigan Locker Officers Re-elected



Byron Watson (center), president, Burleigh Libkuman (left), vice president, and Elwyn Younker, secretary-treasurer, of the Michigan locker association grin happily at each other after having just been re-elected by members of the association.

### Proposed Plant Rules Okayed By Operators

EAST LANSING, Mich.—Election of officers and discussion of a proposed set of rules and regulations governing the operation of locker storage plants in the state of Michigan constituted the principal items on the docket at the business meeting which the Michigan Refrigerated Food Locker Plant Operators Association held here recently during the group's annual conference.

After a few lukewarm nominations and after all of last year's officers

had expressed a desire not to be considered as candidates for this year's election, the entire slate of incumbents was unanimously re-elected by acclamation.

The officers thus re-elected are: president, Byron Watson of Bad Axe; vice president, Burleigh Libkuman of Marquette; secretary-treasurer, Elwyn Younker of Lapeer.

The rules and regulations agreed upon by the Michigan operators are patterned closely after those adopted by the state of Wisconsin last year. Members of the Michigan association voted to submit these regulations to the state's department of agriculture, which will serve as the enforcing agency.

The Michigan locker men deliberately avoided incorporating their proposed rules into a law, for as long as they remain in the status of regulations rather than a statute they can be changed at any time by a petition of a majority of the state's plant operators, without the long and tedious process of amending a law.

President Watson announced that, due to the desirability of continuance of effort on certain matters still pending, the association's legislative committee of last year will be held over. Appointments of new committees on other activities will be announced later, stated the association president.

## Locker Plant MISCELLANY

(Notes jotted down at the Michigan Refrigerated Food Locker Plant Operators Conference held last month at Michigan State College.)

A warning against confusion of the terms "waterproof" and "moisture-proof" was issued by C. W. DuBois of the New York State Agricultural Experiment Station at Geneva, N. Y. A wrapping material, he pointed out, may be waterproof and yet permit the passage of moisture vapor—and consequently of odors.

Importance of price in the consideration of wrapping materials for locker plant use was touched on by a representative of Kalamazoo Vegetable Parchment Co. Referring to a Kansas survey which revealed that 70% of all locker renters have an annual income of less than \$1,000, he stated that his company had developed a latex sheet which seemed ideal for locker use, but had not put it into production because it would have to sell for 30 cents per pound—far more than the average locker user could afford to pay. The question of more satisfactory wrapping materials is a price—not a production—problem, he declared.

Fruit processing tips offered by Prof. H. L. Seaton of Michigan State College's department of horticulture:

Freeze fruit at the right season.

All fruit should be frozen as quickly as possible after picking. Encourage your patrons to cooperate with you in this respect. If you must hold cherries for any length of time before freezing, immerse them in water to prevent oxidation.

The peach is the "headache item" in the fruit line as far as locker plants are concerned—it's by far the toughest to process without deterioration.

Carmelization of sugar in sweetened fruit packs seems to be one problem to which no satisfactory answer has as yet been found.

Mr. DuBois on public health aspects of the locker plant: Freezing causes some destruction of micro-organisms, but does not sterilize. Bacteria continues to grow, even at low temperatures.

Active discussion on aging of beef by means of ultra-violet rays indicated that the general opinion is that the light rays stop bacterial growth, but do not age the meat directly. The aging results from the higher temperatures at which the use of the light makes it possible to hold the meat. Prof. L. H. Blakeslee of M.S.C.'s animal husbandry department reported on experiments which showed that bacteria stop growing until they become conditioned to the light rays, and then begin to grow again.

Prof. Seaton on seeds: The locker plant operator's interest in produce should begin with planting. He should encourage his patrons to plant the proper varieties of crops for freezing. Some seed companies, recognizing the rapid growth of the frozen food and locker storage industry, are starting to put up packs of

seeds best suited for frozen storage.

Bert Wermuth, manager of "Michigan Farmer," ventured the opinion that the development of quick freezing may mean the renascence of some old favorite varieties of fruits and vegetables which have been discarded because of poor shipping qualities.

Ed. G. Squire, president of the National Frozen Food Locker Association, reported in his banquet speech that the third annual meeting of the national association is scheduled for Sept. 23-25 at the Fontenelle hotel, Omaha, Neb.

## Texan Tests Branch Locker Plant Plan

DALLAS, Tex.—To test the plan of decentralized locker plant operation which he someday hopes to develop, T. G. Kelley, operator of a 2½-locker complete service frozen food storage plant in Carrollton, Tex., has opened a branch plant at the crossroads hamlet of Shepton, some nineteen miles north of Dallas.

This branch plant, with a capacity of 100 lockers, was installed as an adjunct to a food store, although the proprietor of the store has no direct connection with the plant itself.

The plant has no quick-freeze, aging, or curing facilities, but does maintain a chill room in addition to the locker room. Refrigeration for the plant is supplied by a 2½-ton Baker ammonia system powered by a 3-hp. motor.

All processing is handled at the main plant at Carrollton, about twelve miles from the branch. Produce brought to the branch is stored temporarily in the chill room until it can be removed to the main plant for processing. Processing charges for food handled in this way are the same as if the patron brought the produce directly to the main plant.

For transporting fresh produce from the branch plant to the main plant and frozen foods from the main plant back to the branch, Mr. Kelley uses an ordinary delivery truck fitted with plain metal barrels.

"What we hope to demonstrate here," says Mr. Kelley of his Shepton branch, "is that the branch plant system will solve the problem of profitably bringing locker service within reach of every consumer."

Building of the Shepton plant, as well as that of the Carrollton plant, was engineered by Oscar Kelley, refrigeration engineer for Boedecker Ice Cream Co., Dallas.

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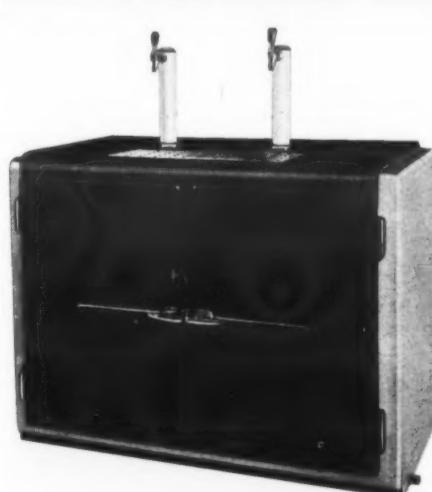
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## 6 One-Temperature Condensing Units Cool Patrons & Food In 'Old Mill'



### 3 Machines Handle Ice Cream Cases

ARLINGTON, Mass.—A bank of six Mills condensing units, hooked up so that no machine handles more than one temperature, has been installed by Miller & Seddon Co., Mills distributor, in "The Old Mill" here, to handle the refrigeration needs of this roadside restaurant.

Three Model FBIAL machines handle the ice cream serving cabinets. A 1-hp. heavy-duty unit takes care of all water cooling and the soda bar. A 1-hp. medium back pressure unit provides refrigeration for all food storage. A 225-gallon hardening room is handled by a 1½-hp. water-cooled unit.

A 7½-hp. Mills water-cooled unit hooked up to a Fedders "All-Season" unit and the necessary ductwork handles the air conditioning for the restaurant. This unit is arranged so as to take care of two cooling coils and a heating coil. To further increase the flexibility, a two-speed motor was used to drive the fan on the Fedders unit.

### Modern Milk Aerator Triples Production For Dallas Dairy

DALLAS, Tex.—Installation of a modern Frigidaire milk aerator, powered by a 14-ton "Freon" condensing unit, in the W. A. McCoy dairy near here has made it possible to handle approximately 1,600 gallons of milk daily.

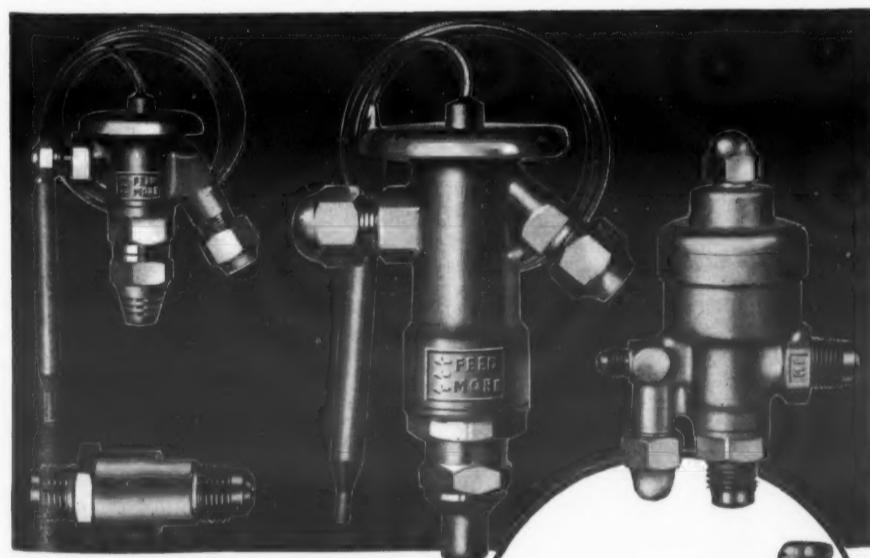
The system, installed by Joe Hoppe, Inc., replaces an ammonia-brine system which had a capacity of only 500 gallons per day.

Milk taken from the cows is reduced from 98° to 33° F. and passed directly to a thermal tank truck for transportation to the city. Handling the milk directly eliminates the necessity for a large number of cans to be held in a refrigerated storage space.

Milk kept in insulated tank truck overnight will have a temperature rise of not over 3° F., it is reported.

Control is arranged to operate the refrigeration system in direct proportion to the load on the aerator.

## The Original VELVET ACTION VALVES



Thermal Expansion, Constant Pressure, Automatic Expansion, Retarder, Defrost and Check Valves. Peerless Valves definitely improve the operation of any refrigerating system by their smooth, velvety control of refrigerant. Continuous, trouble-free performance is assured by sound basic design, backed by carefully chosen materials and painstaking workmanship. Peerless valve movements are always smoother, easier—no jerking or jumping.

Peerless alone offers the *Interchangeable Orifice Cartridge*, a device which accurately meters the flow of refrigerant in the correct quantity for any application. Alternate over-feeding and under-feeding is completely eliminated. Precision-made, attractively finished and rigidly inspected, Peerless Valves are delivered to you in tamper-proof metal containers.

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P. O. Box 636  
Detroit, Mich.

## 250 Self-Contained Cases Keep Candy Fresh For West Coast Theater Chain

LOS ANGELES—A constant flow of chilled air keeps candies cool and fresh in the display-and-sale cases built for Fox-West Coast Theaters Corp. by the Klassen Co. and refrigerated by Bedell Engineering Co.

Chain is now installing these metal-trimmed wooden cases in the lobbies of many of its theaters. First of these metal-trimmed wooden cases was installed for trial at Grauman's Egyptian Theater in Hollywood. Since then 250 units have been placed in other theaters in the chain, without the loss of a single candy bar reported.

Designed with space limitations in mind, the unit required a special base which consists of a 1½-inch pipe with a U-bend acting both as receiver and base. Suspended from the case on springs and rubber mountings, the refrigerating unit develops 3,400 B.t.u. per hour, handles about 70 c.f.m. of air, and holds the candy at a temperature of not over 70° F. in outside air temperature of 90° F.

Incorporated in the self-contained unit is a 5-row coil of Thermek tubing, and a Torrington fan powered by a ½-hp. rubber-mounted, direct-connected motor. Also included in the system are a three-pass condenser, Alco thermo-valve, Mueller liquid line strainer, double-pipe heat exchanger, Minneapolis-Honeywell thermostats, a Friez pressure control, and a ½-hp. Wagner repul-

sion-induction motor which powers the compressor supplied by the Bedell firm.

Air ducts are concealed in the movable wings and the sliding center section. Air passes through a throw-away filter, and is then discharged through 12 sets of openings so that each shelf gets a flow of 5 to 6 c.f.m. Fluorescent lighting was used to eliminate the heat load of incandescent illumination.

M. P. Fugle and Jack Schrote of Bedell Engineering Co. developed the idea conceived by R. H. McCullough, the theaters' general purchasing agent. Actual method of distributing

air was designed by J. W. Banteau, engineer for the theater chain.

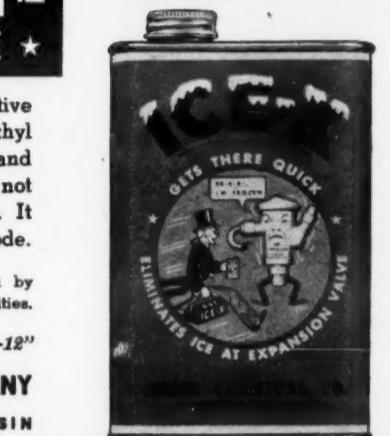
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Ice-X is hazard-free, safe, easy to use, fully machine tested.

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ICE-X ★ SULPHUR DIOXIDE ★ METHYL CHLORIDE \*

### \* PREVENTS NEW ICE \*

ANSUL ICE-X is equally effective with methyl chloride, acrolein methyl chloride, methylene chloride, and all "Freon" refrigerants. It will not react with refrigerants or oil. It leaves no residue. It will not corrode.

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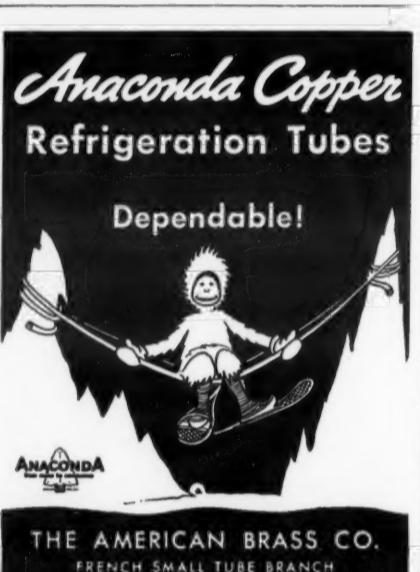


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## 'Cavern' Job Description Is First In Imperial Brass Contest

**Nick C. Meyer of Denver Gets the \$100 Award; M. S. Axelrod Is Second**

CHICAGO—A description of a refrigeration installation serving visitors to the Carlsbad Caverns in New Mexico won for Nick C. Meyer, installation supervisor for the Grauman Co. of Denver, Col., the first prize of \$100 offered by Imperial Brass Mfg. Co. for the best description and statement about the use of its "triple-seal" flare fittings.

The Grauman Co. builds fountain and lunchroom equipment. The Imperial manifolds, valves, and other items used on the job were sold by the McComb Refrigeration Supply Co., refrigeration supplies wholesaler in Denver.

The job covered by Mr. Meyer in his description was for a soda fountain and luncheonette. The installation was made with the Imperial copper tube manifold system. The picture of the two condensing units used in the installation shows the 14 Imperial shut-off valves, manifolds, and dehydrators which were used in the job.

In size, coloring, variety, and perfection of formation, the Carlsbad caverns are recognized as being without equal among all the famous caves of the world. One of the rooms or caverns, known as "The Big Room," is three-quarters of a mile long, 625 feet wide, and in some places 300 feet high. A trip through the caverns, which has been set aside as a National Park by the federal government, requires a hike of seven miles.

One of the problems at the caverns has been to provide adequate eating accommodations for the large parties that go through the caverns. To handle large groups quickly the Grauman Co. installed a complete cafeteria located 700 feet underground in a huge chamber 320 feet by 100 feet. The cafeteria has handled a peak load of 3,700 people in three hours.

Second prize in the nationwide contest was awarded to Myer S. Axelrod of the Continental Refrigeration Service Co., 3814 West Chicago Ave., Chicago, Ill. The installation which he described for the second prize of \$50 was an 8 x 10-foot walk-in refrigerator used for storing and curing sausages and ingredients.

In his statement Mr. Axelrod said that the fittings pulled up a leak-proof joint with only a minimum of effort.

### G-E, Temprite Units In New Type 'Glass Bar'

PONTIAC, Mich.—The structural glass bar installed in connection with the Pontiac Bowling Alleys here is being equipped with commercial refrigerators and beer cooling by Roy Wetmore of Wetmore Safety Sales & Service of Ferndale, Mich. All refrigeration equipment is General Electric.

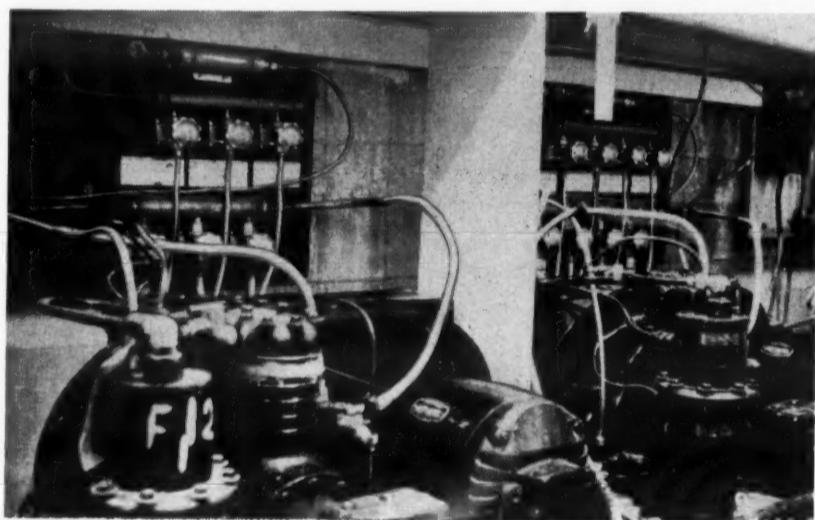
Beer is pre-cooled in an 8 x 10-ft. walk-in refrigerator located in the basement. This box is equipped with a fan-coil unit and beer lines are extended to two Temprite cooling units installed in the glass bar. Refrigeration for the walk-in box and the Temprites is provided by a 1½-hp. G-E compressor equipped with an oil separator and surge tank.

Two ice makers and back bar refrigerators for bottles are powered by a ½-hp. G-E compressor.

Mr. Wetmore has also installed Temprite beer cooling equipment in Tom Martin's restaurant, at Oxford, Mich., and packaged air conditioners in two Klebba stationery stores; one at Royal Oak, Mich.; the other in Ferndale, Mich.



The Imperial Brass Mfg. Co. contest winner, Nick C. Meyer, installation supervisor, the Grauman Co., Denver, receives award from Imperial representative, Paul C. Hathaway, while Harold McCombs of the McCombs Refrigeration Supply Co. looks on.



A view of the installation, showing 14 Imperial shut-off valves, manifolds, dehydrators, and arrangement of units.

### Dealer Sales Far Ahead Of Utility In N. Carolina

### Refrigeration, Air Cooling Gains Shown In Jersey

RALEIGH, N. C.—A total of 13,827 household electric refrigerators were sold during 1940 by dealers in the territory of Carolina Power & Light Co. Dealer range sales for the year totaled 4,361 units, while 1,396 water heater sales were reported.

Appliance sales by the utility during the year totaled 154 refrigerators, 391 ranges, 292 water heaters, 1 air conditioning unit, 1 radio, 10 vacuum cleaners, and 4 clothes washers.

A more complete tabulation of dealer appliance sales for the year follows:

Appliance	Unit Sales
Refrigerators	13,827
Ranges	4,361
Water Heaters	1,396
Air Conditioners	67
Vacuum Cleaners	1,953
Clothes Washers	6,048
Dishwashers	31
Radios	39,504

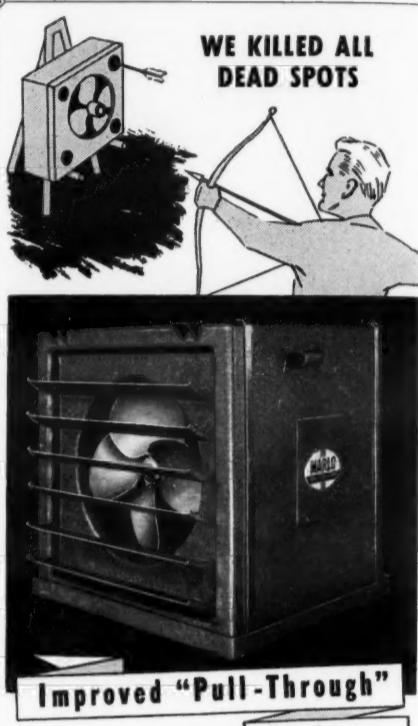
NEWARK, N. J.—Sharply increased refrigerator and appliance sales in New Jersey, together with continued gains in air conditioning installations, are indicated by the thirty-second annual report of Public Service Corp. of New Jersey.

"Conspicuous in sales of electrical appliances during the year were refrigerators, of which 17,993 were sold, an increase of 287.20% over those sold in 1939," the report commented. "It is estimated that the sales of all dealers, including Public Service, amounted to 62,000 units, making a total of approximately 557,000 refrigerators on the company's lines. Total electrical appliance revenue amounted to \$4,302,066.25, a gain of 59.19%."

Summer cooling and ventilating installations during 1940, the company reported, totaled 302, as compared with 254 in the preceding year.

### Amana Society Installs 100 Locker Plant In Walworth

WALWORTH, Wis.—Cooper's Market is adding a 100-locker frozen food storage plant to its meat market here in the near future. Room will be provided for expansion if plant patronage makes such a move feasible. The refrigeration system and the chill room of the meat market will be enlarged sufficiently to handle the locker plant. The plant will be installed by the Amana Society of Amana, Iowa.



The Outstanding Feature of the New Model 1941

### MARLO UNIT COOLER

The full coil surface is evenly effective. No more dead spots—"Pull-Through" does it!

All aluminum construction—Cast End-Frames.

Full range of sizes. Venturi Fan Ring—Quiet Operation. Suitable for comfort cooling applications.

See it at the Show, in January.

### MARLO COIL COMPANY

6135 Manchester Avenue, St. Louis, Mo.  
Refrigerating Equipment Manufacturers



BEARSE MANUFACTURING COMPANY  
INCORPORATED 1921  
3815-3825 Cortland Street, Chicago, Illinois



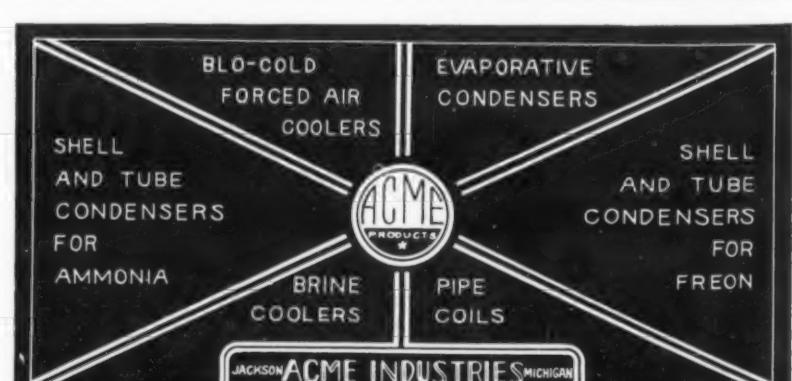
By Their Yellow Tag Shall Ye Know Them!

SUPERIOR "SOFT SEAT" DIAPHRAGM  
PACKLESS VALVES

Yup! They really have soft seats—no kiddin'! So easy are they to close that a child could do the job; yet the seats are tough and long-lasting.

Ask your Jobber—or write for Catalog

**SUPERIOR VALVE & FITTINGS COMPANY**  
1509 WEST LIBERTY AVENUE • PITTSBURGH, PENNA.  
EXPORT: 100 VARICK STREET • NEW YORK, N. Y.



## Defense Activities

### Where Defense Contracts Money Is Being Expended In 11 States

The listings on this page (continued from the two previous issues) compiled by Outdoor Advertising, Inc. from U. S. Government reports and local sources, and quoted by Advertising &

Selling, present as complete a picture as possible of the allocation of defense expenditures with a product-place-and-dollar breakdown.

#### SOUTH CAROLINA

Charleston, navy yard, ships.	\$116,245,964
Clevedale, cotton duck.....	102,165
Fort Jackson, Columbia, const.	7,647,155
Graniteville, cotton cloth.....	563,392
Greenville, serge cloth.....	264,800
Greenwood, underwear.....	211,345
Parris Island, construction...	6,547,950
Spartanburg, replacement cen.	6,739,327
Travelers Rest, cloth.....	209,450
Ware Shoals, cotton cloth.....	287,375
South Carolina state total..	\$138,818,923

#### TENNESSEE

Chattanooga, materiel.....	\$ 3,421,455
Cleveland, overcoats.....	126,936
Humboldt, plant.....	28,305,600
Jefferson City, TVA, river...	20,000,000
Knoxville, underwear, ordn.	853,500
Lebanon, blankets.....	488,625
Memphis, comforters, tents..	302,043
Milan, ammunition plant....	14,000,000
Nashville, airport, shoes....	1,605,164
Springfield, blankets.....	550,961
Camp Peay, Tullahoma, const.	8,637,600
Tennessee state total.....	\$78,291,884

#### SOUTH DAKOTA

Fort Mead, Sturgis, housing..	\$127,860
South Dakota state total....	\$127,860

#### TEXAS

Abilene, airport, camp.....	\$ 4,225,501
Baytown, const., explosives..	18,560,000

#### THE NEW PUFFER HUBBARD LINE ALL PORCELAIN DISPLAY CASES WITH GRAD-U-MATIC AIR CONDITIONING and FLUORESCENT LIGHTING

#### ALL PORCELAIN COMMERCIAL CABINETS WITH GRAD-U-MATIC AIR CONDITIONING

#### DRY TYPE BEVERAGE COOLERS 5 SIZES - 50"-6'-8'-10'-12' PORCELAIN EXTERIOR-STAINLESS STEEL SLIDE AWAY DOORS

WRITE FOR DETAILS

PUFFER-HUBBARD MFG. CO. Grand Haven, Mich.

## JARROW DOOR GASKETS

Preferred by Manufacturers, Jobbers, Service Men

WHY? Because refrigerator door gaskets are a specialty—not a side line—with Jarrow! As a result, Jarrow Gaskets are the choice of many leading refrigerator manufacturers who demand the best in gaskets for their boxes. And, too, because the Jarrow Line is most complete—standardized replacement gaskets to fit nearly 95% of all commercial and household refrigerators. Ask your jobber—the chances are he stocks Jarrow Gaskets, exclusively.

★ ★ ★

### JARROW PRODUCTS

Factories: Chicago and Grand Rapids

General Offices: 420 N. La Salle St., Chicago

Use DRIERITE for Drying  
Air  
Refrigerants  
Industrial Gases

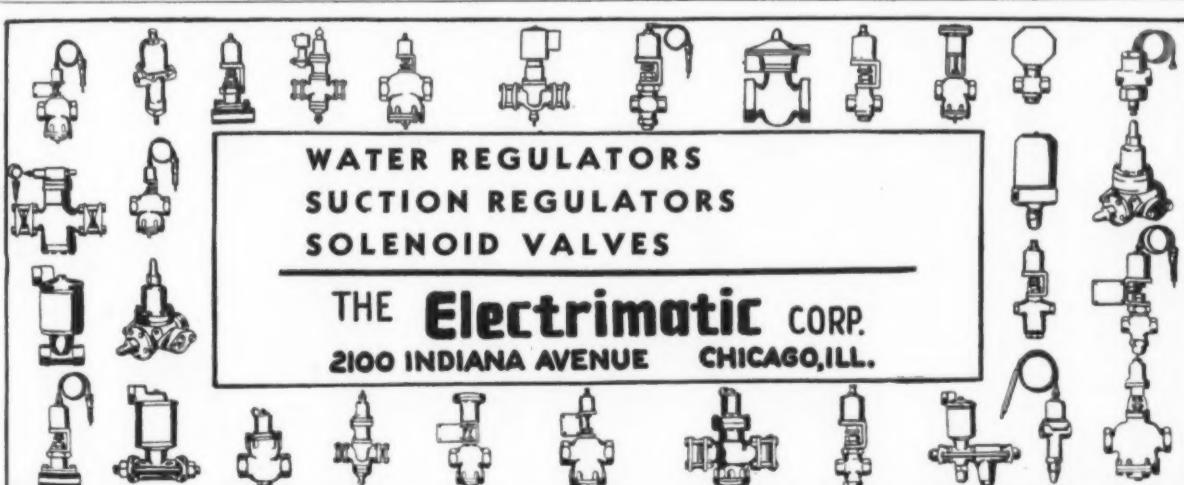
#### The Most Efficient Drying Agent

is the one which leaves the smallest amount of moisture in the system.

The Engineer does not require a drying agent to remove large amounts of water—he can pump most of it out. It's the last traces that are hardest to remove.

DRIERITE is the Most Efficient Drying Agent in general use in the Refrigeration Industry.

W. A. HAMMOND DRIERITE CO., Yellow Springs, Ohio



Beaumont, cargo boat.....	1,973,000
Brady, airport improvements.	141,631
Camp Brownwood, Brownwood	4,197,564
Ft. Brown, Brownsville, const.	114,727
Corpus Christi, construction..	29,623,325
Dallas, suits, engines.....	4,611,099
Ft. Bliss, El Paso, const....	3,658,230
Fort Worth, ordnance.....	1,322,181
Galveston, construction.....	3,561,168
Fort Crockett, housing.....	145,000
Houston, fuel, oil.....	2,171,982
Ellington Field, construction.	1,318,647
Humble, construction.....	1,097,000
Midland, Midland Airport....	105,699
Camp Wolters, construction.	5,546,195
Orange, boats, destroyers....	93,198,824
Camp Hulen, Palacios, const.	1,628,923
San Angelo, airport, hospital.	943,250
San Antonio, warehouse.....	405,000
Camp Stanley, construction.	405,000
Brooks Field, housing.....	997,900
Kelly Field, construction....	1,190,000
Duncan Field, construction....	1,976,193
Fort Sam Houston, const....	4,889,312
Normal Quartermaster Depot,	
San Antonio, construction..	200,226
Clark Field, housing.....	326,900
Taylor, mattresses.....	2,224,947
Waco, folding cots, mattresses	2,202,486
Texas state total.....	\$192,961,910

#### UTAH

Ogden, construction.....	\$ 9,860,800
Hill Field, Ogden, const....	2,415,741
Salt Lake City, construction.	468,247
Ft. Douglas, airport.....	435,739
Wendover Field, const....	159,572
Utah state total.....	\$13,340,099

#### VERMONT

Ft. Ethan Allen, facilities....	\$ 951,328
Springfield, ordnance.....	104,697
Vermont state total.....	\$1,056,025

#### VIRGINIA

Alexandria, trucks.....	\$ 1,021,430
Fort Belvoir, const., buildings	5,929,154
Bedford, ordnance.....	131,995
Blacksburg, improve, airport.	219,437
Christiansburg, working coats	134,490
Dahlgren, const., hangar....	1,013,100
Danville, sheets.....	217,770
Langley Field, runways....	1,842,388
Lynchburg, shoes, airport....	721,175
Newport News, ships, ordn.	237,532,130
Ft. Eustis, construction.....	5,521,425
Norfolk, Navy yard, vessels..	333,150,094
Fort Story, Norfolk, housing.	1,444,271
Ft. Monroe, construction....	100,000
Petersburg, trunks.....	103,350
Camp Lee, Petersburg, const.	7,539,051
Phoebeus, housing.....	284,000
Portsmouth, housing.....	4,599,187
Pulaski, powder plant.....	6,765,399
Quantico, construction.....	2,595,520
Radford, explosives plant....	59,550,000
Richmond, const., aviation...	15,989,450
Roanoke, bridges, airport....	960,095
Tazewell, coal.....	311,695
Virginia Beach, temp. housing	542,274
Camp Pendleton, housing....	594,040
Winchester, cloth, overcoats..	392,295
Yorktown, housing, ordnance.	2,013,130
Virginia state total.....	\$691,218,345

#### WASHINGTON

Aberdeen, tent material....	\$ 473,906
Puget Sound Navy Yard, Bremerton const., submarine tenders, destroyers.....	92,160,476
Moon Island, airport.....	3,826,580
Roughton, tank bunks.....	1,879,542
Keyport, construction.....	166,949
Olympia, Olympia Airport....	134,695
Port Angeles, airport.....	211,752
Fort Casey, housing.....	153,541
Fort Flager, housing.....	153,541
Seattle, ships, airplanes, plant	406,166,393
Fort Worden, Seattle, const.	757,670
Spokane, construction.....	471,827
Fort Lewis, const., housing...	12,489,798
Grey Field, Tacoma, const....	125,000
McChord Field, Tacoma, const.	846,649
Vancouver Barracks, housing.	948,304
Washington state total....	\$520,966,633

#### WEST VIRGINIA

Charleston, chemicals, tools...	\$ 2,784,900
Clarksburg, chinaware.....	124,167
Huntington, clothing.....	921,411
Martinsburg, cloth, overcoats..	276,795
Morgantown, construction....	15,000,000
Wheeling, grommet rings....	1,075,867
S. Charleston, housing, plant.	46,527,000
West Virginia state total...	\$66,710,140

#### WISCONSIN

Baraboo, cloth.....	\$ 331,250
Bucksdale, ordnance.....	305,500</

**The Machine For Your Next Job...**  
If it's a refrigeration job... no matter how big or how small...we can supply Lipman equipment to fit the specifications. Let us work with you.

GENERAL REFRIGERATION DIVISION  
Yates-American Machine Co.  
Dept. AC-3, Beloit, Wis.

Model 153  
Water-cooled  
Machine

**Lipman**  
GENERAL  
REFRIGERATION  
DIVISION

## What's New

Descriptions of some of the brand new items for the refrigeration and air conditioning, and major appliance fields.

### 'Duplex' Tubing For Exchanger Introduced

BRIDGEPORT, Conn. — Duplex tubing, having an inner tube of one metal or alloy and an outer tube of a different metal, has been developed by Bridgeport Brass Co. for heat exchangers or other uses where tubing is subjected to two different

types of corrosive attack.

Tubing up to 2 inches o.d. in numerous combinations of metals is now available. For refrigeration plants using ammonia, the company advises a combination of steel outside to resist ammonia attack and copper inside to withstand circulating water corrosion.

Cloth contact between the two materials without interfering with heat transfer, is claimed. Cost is said to be little more than standard tubing, and the possibility of reducing wall thickness, especially where an expensive material had to be used previously, is said to further reduce the cost.

Duplex tubing has been tested for four years in various oil refineries, the company says, and is still in service, whereas in the past a single alloy failed in a shorter period.

### Inside Release Eliminated On New Kason Lock

BROOKLYN—New lock for commercial refrigerators which eliminates the need of an inside release handle has been introduced by Kason Hardware Corp. here. In two models, K-88 for two-point application and K-89 for one-point application, the lock consists of a spring operated bolt and a revolving wheel strike, permitting unlatching by merely exerting pressure on the door.

Two-point application is said to prevent the door's warping and eliminate consequent waste of refrigeration. Since no operating handle is necessary, there is no need for any connecting rods or gears to synchronize operation of the two latches.

Model K-89, intended for small doors where two-point application is unnecessary, is designed with the handle as a part of the latch body.

### Double-Size 'Deepfreeze' Has Machine In Between

CHICAGO—A double-size Deepfreeze frozen-food storage cabinet has been introduced by the Deepfreeze division of Motor Products Corp. for stores, institutions, and other large-quantity users of frozen foods.

This new cabinet is made up of two Deepfreeze "cold-cylinders" 30 inches deep and 18 inches in diameter, with the  $\frac{1}{2}$ -hp. compressor placed between. The cold-cylinder combines the functions of cooling element and storage box. "Freon" refrigerant circulates within the double walls of the cylinders; hence the entire interior surface is primary freezing surface, and all food contained in the cylinders is within nine inches of this surface, it is claimed.

Dimensions of the double unit are: height, 37 inches; width, 26 $\frac{1}{2}$  inches; length, 65 inches; weight, crated, 725 lbs.

### Plastic Charts Can Be Re-Used 2 Years

SEWICKLEY, Pa.—Made of Vinylite plastic, an improved design of recording instrument charts made for continuous re-use has been developed by Permochart Co. here.

The previous day's ink record on Permocharts is said to be easily removed from the surface with a damp cloth. Permocharts will not curl, are non-flammable, and are oil, gasoline, and grease resistant, it is claimed. Chart centers are reinforced to prevent deterioration, with the charts being guaranteed for daily use for two years. In industries where large numbers of charts are used, Permocharts are claimed to reduce chart costs by 80% or more.

For applications where it is necessary to save chart records, the company has established a microfilm photographic system for recording and filing. This method is said to reduce filing space by 98%, and in plants where 100 charts a day are used, a saving of 23% resulted.

### Furniture Styling In New Room Cooler



This new deluxe Carrier room cooler has wood cabinet designed by Lurelle Guild, which slips over the unit after it has been put into place. A special base is provided.

### Liquid Indicator With Swivel Flare Connector

PITTSBURGH—Additions to Superior Valve & Fittings Co.'s line of products for the 1941 market include liquid indicators with swivel flare connectors and with removable sight glass assembly, and a check valve designed especially for use on hermetically sealed refrigerating units.

Conventional connections for SAE flare type liquid indicators have the SAE flare connection on both ends, the connection being made to the liquid receiver valve or dehydrator, or other part of the system, by means of two flare nuts and a piece of tubing. In the new design, one connection is provided with a swivel flare which actually is a short piece of flared copper tubing, soldered to the body of the liquid indicator.

The swivel flare provides direct attachment to the male flare fitting on the receiver valve, dryer, or that part of the system to which the liquid indicator normally is attached.

In the liquid indicators with removable sight glass assembly, the entire top assembly may be removed as a unit, and the refrigerant lines soldered into the body of the indicator without danger of damage to any of the parts. Joint between the body and the sight glass assembly is effected by means of a soft metallic gasket. This arrangement, it is said, makes it unnecessary for the installer to remove the packing nut, packing, and gasket and glass while soldering. The assembly is hexagonal in shape to permit easier removal.

When the solder joint has been completed and the body has cooled, the entire assembly may be re-installed and tightened down against the gasket joint with no damage to internal parts, it is said. This feature is said to be especially valuable in connections in which high temperature solders are used.

The new hermetic check valve is an inexpensive unit designed for use in the suction line of hermetically sealed refrigerating units. Purpose of the check valve is to prevent high pressure from the condensing unit from passing to the low side unit, when during operation the discharge valve, which generally serves this purpose, has failed. Reason for using the check valves instead of replacing the discharge valve is that to do the latter the unit must be opened to get to the inside. The hermetic check valve, on the other hand, may be installed by cutting the suction line on the outside, making a much simpler repair operation.

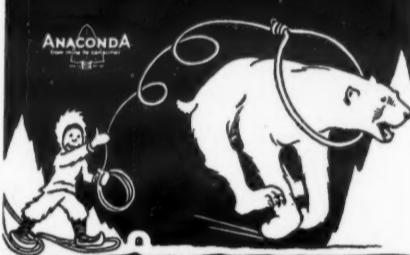
### Direct-Draw Beverage Cooler Added By Tyler

NILES, Mich.—New product introduced recently by Tyler Fixture Corp. is the "Draw-Kold," direct-draw beverage cooler, designed to match and line up with the company's "Dry-Kold" bottle beverage cooler.

The new cooler, of welded steel construction, has a Caf-O-Lite top, claimed to be burn and stain proof.

A coil for cooling water is incorporated in the model, other features of which are large service doors, stainless steel drain board, and Cornelius beer taps.

### Anaconda Copper Refrigeration Tubes for difficult jobs!



THE AMERICAN BRASS CO.  
FRENCH SMALL TUBE BRANCH  
General Offices: Waterbury, Conn.

### FROM 1/4 to 25 TONS OF REFRIGERATION

Brunner Refrigerating and Air Conditioning equipment comprises air and water cooled condensing units for practically all types of commercial applications up to and including 25 tons of refrigeration. Catalog promptly on request. Brunner Manufacturing Co., Utica, N. Y., U. S. A.

**BRUNNER**

FOR YEARS THE SYMBOL OF QUALITY

**KERO TEST**

Valves and Fittings  
The Standard of the  
Industry

Kerotest Manufacturing Co.  
Pittsburgh, Pa.

CHARGED  
DAVISON'S  
IN SILICA GEL  
WITH  
Specify  
DRYERS  
THAT BEAR  
THIS LABEL  
Ask your Jobber

FOR BETTER SATISFIED  
CUSTOMERS  
USE—

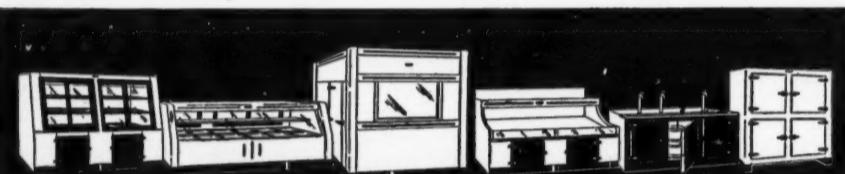
**AIR-MAZE**  
Permanent Air-Filter Panels  
AIR-MAZE CORP., CLEVELAND, OHIO

**AMINCO**  
WATER REGULATING VALVE  
(Pressure Controlled)

Aminco No. 614 Water Valve is used to regulate the amount of water passing through water-cooled condensers. The valve is quiet in operation, free from chattering; practically friction-free and provides a maximum flow of water with a minimum head pressure differential.

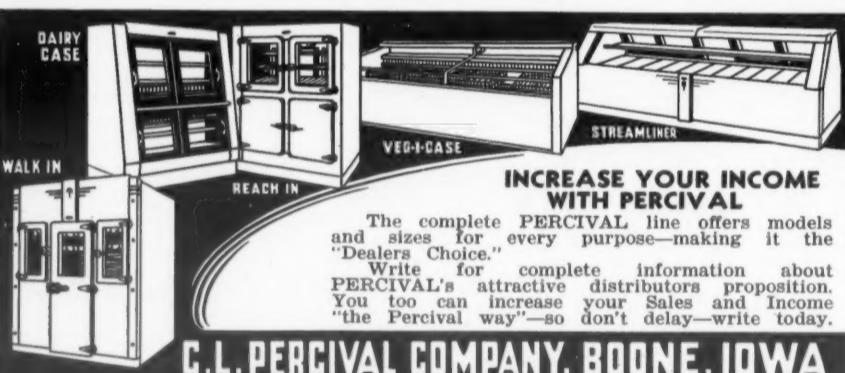
Aminco Water Valves have a double bellows seal, removable body seat and will operate on all refrigerants except ammonia. Standard connections  $\frac{3}{8}$ " x  $\frac{3}{8}$ " F. P. T. Send for Bulletin No. 15.

**AMERICAN INJECTOR COMPANY**  
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**"TOPS" IN QUALITY, VARIETY AND PROFIT**  
MAKING MONEY AND FRIENDS FOR HUNDREDS OF DEALERS EVERYWHERE  
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### INCREASE YOUR INCOME WITH PERCIVAL

The complete PERCIVAL line offers models and sizes for every purpose—making it the "Dealers Choice."

Write for complete information about PERCIVAL's attractive distributor proposition. You too can increase your Sales and Income "The Percival Way"—so don't delay—write today.

**C. L. PERCIVAL COMPANY, BOONE, IOWA**

**Fan Blades and Blower Wheels**  
by  
**TORRINGTON**

**THE TORRINGTON MANUFACTURING CO. of TORRINGTON, CONNECTICUT**

**AMANA**  
MAKES SENSATIONAL SALES RECORDS!

New Amana "Plug In" Case, 6 ft. and 8 ft. sizes. 5-year guaranteed compressor unit. Triple glass front. Hard rubber doors and slides. Cork board insulation. An unmatched value. Write Amana now for facts on COMPLETE line. Desirable territories available to distributors.

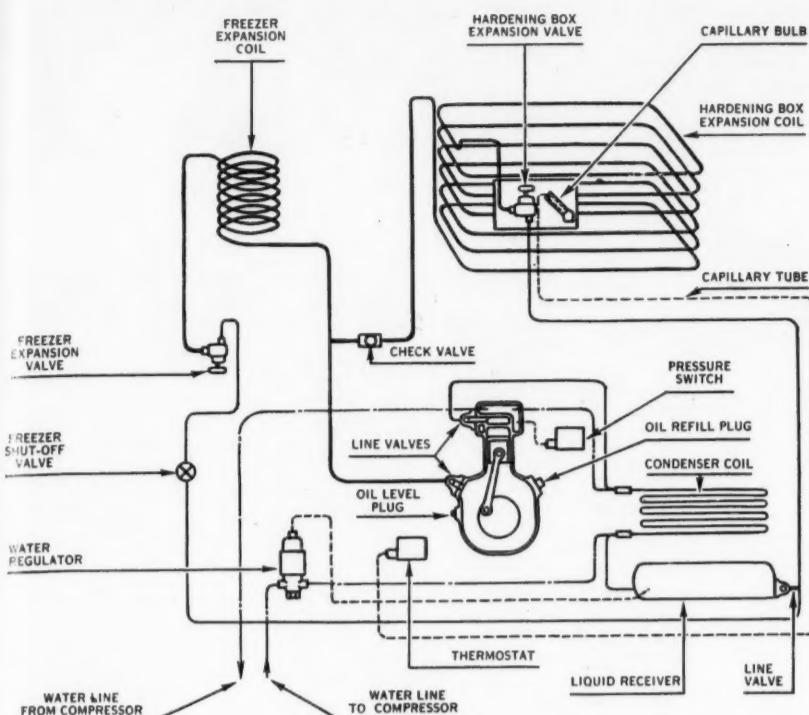
**AMANA SOCIETY**  
Amana, Iowa

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NILES, Mich.—New product introduced recently by Tyler Fixture Corp. is the "Draw-Kold," direct-draw beverage cooler, designed to match and line up with the company's "Dry-Kold" bottle beverage cooler.

The new cooler, of welded steel construction, has a Caf-O-Lite top, claimed to be burn and stain proof.

Fig. 28—Tuthill's Refrigeration System



## Operating and Service Methods For Dry-Expansion Counter Freezers

By Arch Black

**Editor's Note:** This is one of a series of articles on the servicing of counter-type ice cream freezers, which have been appearing in the issues of AIR CONDITIONING & REFRIGERATION NEWS in the past few months.

It will form one section of a general series on the servicing of low temperature equipment in common use by the retailer.

### Tuthill Freezers

Tuthill has two self-contained cabinet models, and cabinets for connection with counter freezers as well as for remote installation are available for use with either 2½ or 5-gallon freezers.

In addition a 1-gallon self-contained unit was introduced in 1940 and is described later in detail. For the present, 2½ and 5-gallon freezers introduced prior to 1941 will be referred to.

### Tuthill Refrigeration Circuit

Fig. 28 shows the fundamental units of the refrigerating system as applied to Tuthill freezers. It is the conventional direct expansion system similar to previous systems already explained, but the freezer is of the vertical type while previous articles have dealt with direct expansion freezers of the horizontal type.

While a water regulator is shown in the schematic arrangement, thereby indicating that a water-cooled condensing unit is used, many of the models are available with air cooled condensing units.

In the system two automatic expansion valves are required; one for the freezer, and one for the hardening cabinet. A check valve on the suction line prevents the high temperature gas from the freezer (when freezing the mix) from backflowing into the hardening cabinet coil. Refrigerant used in Tuthill freezer systems is methyl chloride.

### FREEZER AUTOMATIC EXPANSION VALVE

The expansion valve supplying the



of the thermostat allow the compressor to run until the hardening cabinet reaches  $-20^{\circ}$  F. If the compressor stops before this temperature is reached turn the adjustment of the main spring in a downward direction. When the proper temperature in the hardening cabinet is reached turn the adjustment back sufficiently to stop the compressor. Full directions are given on the cover of the thermostat case.

When it is required in servicing the machine to stop the compressor, this may be done by raising the contact arm and inserting a card or heavy paper between the contact points. Likewise, when it is desired to run the compressor when the thermostat has broken the circuit, this can be done by holding the contact arm in its "in" position.

**Note:** When it is required to install a thermostat, it is essential that the well in the holdover tank where the bulb of the thermostat is located be completely filled with grease before the feeler bulb is inserted; and it is also necessary that this hole be properly plugged to prevent leakage of grease after the feeler bulb is installed.

As above stated, the setting of the thermostat should be so that it will maintain a temperature in the hardening cabinet of  $20^{\circ}$  F. below zero. In installations using compressor motors greater than 1 hp. the thermostat is used to energize a magnetic relay, and this relay in turn energizes the compressor motor. In cases of apparent failure of the thermostat in such installations, the condition of the magnetic relay should be examined before condemning the thermostat.

### PRESSURE CONTROL

On many water-cooled condensing units a combination thermostat is used with a high pressure cutout. However, in the Tuthill freezers, when water-cooled units are used a separate pressure control is used. The operation of this control is governed by the head pressure of the compressor and is connected to the high pressure side of the system by means of a capillary tube. This control is adjusted to stop the compressor motor when a head pressure of 175 lbs. is reached. The adjustment is usually accurately made by the control manufacturer and should rarely necessitate changing.

### HARDENING CABINET EXPANSION VALVE

The hardening cabinet expansion valve is made accessible by removing the small cover on the operator's side of the cabinet. This valve should be adjusted to maintain pressures approximately as outlined in Table 6.

It should be thoroughly understood that any of the pressures given in the above-mentioned tables are only approximate and are to be used as a guide by the service engineer in establishing the proper suction pressure.

In adjusting the cabinet expansion valve the proper procedure is to adjust this valve so that frosting occurs for a short distance into the compressor compartment. In other words, there should be a slight frosting on the check valve located in the cabinet expansion coil between the cabinet and the compressor, but there should be no frosting on the compressor.

The settings must be obtained while the compressor is working only on the cabinet. It will be found that there will be a certain amount of frosting on the compressor when the compressor is operating on the freezer, but this is necessary and permissible. In setting the cabinet expansion valve ample time should be allowed for the suction gauge on the compressor to register properly. The adjustment on the valve should not be changed until one is satisfied that the gauge has responded fully to the adjustment.

### THERMOSTAT

The thermostat used in the Tuthill freezer as a rule is that one manufactured by Penn. Its function is to work in conjunction with the expansion valve in starting and stopping the compressor when necessary to properly handle the refrigerant as supplied to the expansion coil by the hardening cabinet expansion valve. The bulb of the power element of the thermostat is located, as can be noted from Fig. 28, in the hardening cabinet.

The range adjustment regulates the degree of variation in the temperature of the holdover solution surrounding the hardening cabinet and this should never be changed.

To obtain the proper adjustment

WELDED STEEL

THE KOCH LINE IS *Complete*  
Walk-In Coolers, Commercial Refrigerators  
and all types of  
Display Cases

Koch does not manufacture  
or sell condensing units.  
Koch distributors therefore  
furnish the units they sell.

Write Today for Information  
on PROFIT POSSIBILITIES

**KOCH** REFRIGERATORS  
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ORIGINAL

Cross Fin  
**COILS**  
A size for every purpose

Acclaimed—because:

They have—Imbedded fin-to-tube contact • Silver Welded Convections • Staggered tubing. Complete line. See your jobber or write today.

**LARKIN COILS, INC.**

519 Memorial Dr., S.E., Atlanta, Ga.

Originators of The Cross Fin Coil



Follow the profit road  
with Sherer. A complete  
line of display and storage  
refrigerators and full  
factory cooperation  
makes the going easier.  
Write for complete  
franchise details.

**SHERER-GILLETT CO.** MARSHALL, MICH.



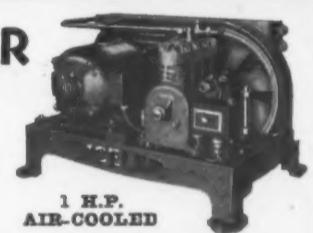
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**DIGELEER 4 CYLINDER UNITS**



For Design, Construction and Service the most  
is offered by DIGELEER. You'll find it worth  
your while to get all the facts about DIGELEER  
compressors in both air and water cooled models  
from  $\frac{1}{6}$  H.P. to 30 H.P. Write for the DIGELEER  
catalogue and learn how you can gain greater  
sales and increased profits.

THE CONDENSING UNIT LINE WITH EXCLUSIVE FEATURES  
**DEISSLER MACHINE COMPANY** Greenville, Pa.  
PIONEER OF FOUR CYLINDER REFRIGERATION



**IT'S A HIT!!!**

Completely automatic defrosting. That makes a hit with every food merchant!

Temperature operation. Uniform control even  
when the compressor is out in the cold. That  
makes a hit too!

Better quality foods—reduced trimming losses.  
That always makes a hit!

At your jobber's—the world's outstanding com-  
mercial control—

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**RANCO 91G2**



# WHY EXPERIMENT?

**HENRY  
PRODUCTS  
COST  
NO MORE!**



*...and, they safeguard  
YOUR PROFITS*

The completeness of the Henry Line; the advanced design, the many exclusive, patented features, plus continuous research and effort to find new ways and methods for further improvement—these are the factors which have earned for Henry the enviable position in the industry it is proud to occupy.

Henry Products protect the profits of the manufacturer, the jobber, the contractor and the service man. So, why experiment, when you pay no premium for them?

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- The Balanced-Action Packless Diaphragm Valve
- The Dehydra-tector—the dryer with the built-in liquid sight port
- The Dispersion Tube for dryers
- The One-Piece Drawn Brass Shell for dryers and strainers
- The Distortion-Proof Flange for dryers and strainers
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